The Iron Age

A Review of the Hardware and Metal Trades.

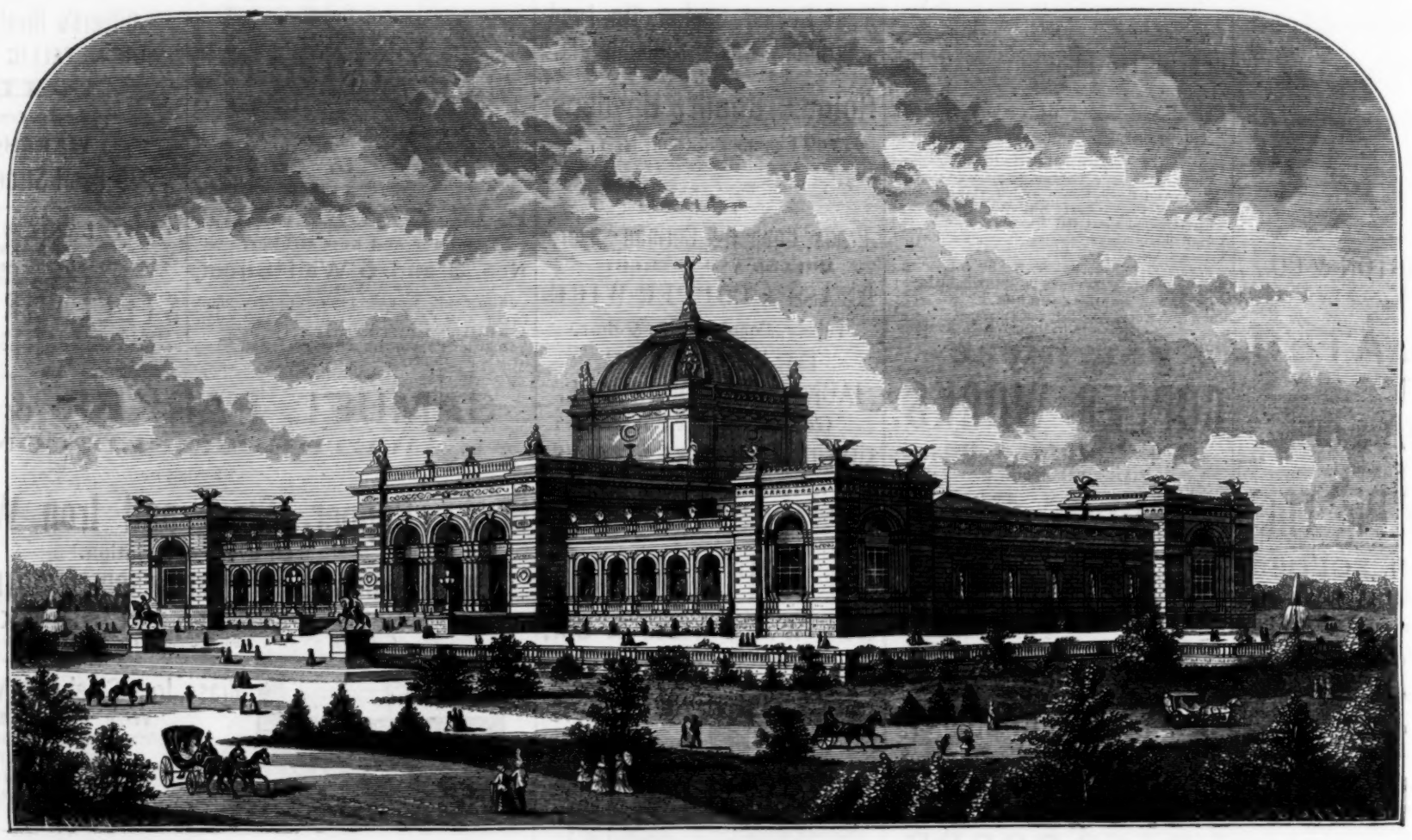
Published every Thursday Morning by DAVID WILLIAMS, No. 10 Warren Street, New York.

Vol. XIV: No. 14. *New York, Thursday, October 1, 1874.* *Four Dollars a Year. Single Copies, Ten Cents.*

Art Gallery of the Centennial Exhibition.

We present herewith an illustration of the art gallery of the Centennial Exhibition, to be erected in Fairmount Park. This structure, which is intended to be a part of the great exhibition, is located on a line parallel with and northward of the main exhibition building. It is on the most commanding portion of the great Lansdowne plateau, and looks southward over the city. It is elevated on a terrace six feet above the general level of the plateau, the plateau itself having an elevation of 116 feet above the surface of the river.

The entire structure is in the modern Renaissance, massive and graceful in outline, and in consonance with the general Park character. The materials are granite, glass and iron. No wood is used in the construction, and the building is thoroughly fire-proof. The structure is 365 feet in length, 210 feet in width and 59 feet in highth over a spacious basement 12 feet in highth, the whole surmounted by a dome 150 feet high.



ART GALLERY OF THE CENTENNIAL EXHIBITION, PHILADELPHIA, 1876.

DETAILS.

The main front looks southward. It displays three distinctive features. 1st, a main entrance in the center of the structure, consisting of three colossal arched door-ways of equal dimensions; 2d, a pavilion at each end; 3d, two arcades, connecting the pavilions with the center. Central section, 95 feet long 72 feet high. Pavilions, 45 feet long 60 feet high. Arcades, each 90 feet long 40 feet high.

CENTRAL SECTION.

The front, on south face of the central section, displays a rise of 13 steps to the entrance, 70 feet wide. The entrance is by three arched door-ways, each 40 feet high and 15 feet wide, opening into a hall. Between the arches of the door-ways are clusters of columns, terminating in emblematic designs illustrative of science and art.

The doors, which are of iron, are relieved by bronze panels, bearing the arms of all the States and Territories. In the center of the main freize is the United States coat of arms. The main cornice is surmounted by a balustrade with candelabra. At either end is an allegoric figure, representing science and art.

The dome rises from the center of the structure to the highth of 150 feet from the ground. It is glass and iron, and of an original design, terminating in a colossal bell. From this the figure of Columbia rises with protecting hands. A figure of colossal size also stands at each end of the dome. These figures typify the four quarters of the globe.

THE PAVILIONS.

Each pavilion displays a window 30 feet high and 12 feet wide; it is also ornamented with tile work, wreaths of oak and laurel, 13 stars in the freize and a colossal eagle at each of its four corners.

THE ARCADES.

The arcades are intended to screen the long walls of the gallery. They each consist of five groined arches. These arcades form promenades looking outward over the grounds and over open gardens, which extend back to the main wall of the buildings. These garden plots are each 90 feet long and 36 feet wide, ornamented in the center with fountains, and designed for the display of statuary.

A stairway from the gardens reaches the upper line of the arcades, which forms a second promenade 35 feet above the ground. Its balustrade is ornamented with vases, and is designed ultimately for statues. The cornices, atticas and crestings throughout are highly ornamental.

THE EAST AND WEST SIDES.

The walls of the east and west sides of the structure display the pavilions and the walls of the entire galleries, and are relieved by five niches designed for statues. The frieze is richly ornamented; above it the central dome shows to great advantage.

REAR FACADE.

The rear, or north front, is of the same general character as the main front, but in place of the arcade is a series of arched windows, 12 in number, with an entrance in the center; in all thirteen openings. Above, in an unbroken line extending the entire length of the structure between the pavilions, is the grand balcony, a promenade of 275 feet long and 45 feet wide, elevated 40 feet above the ground, overlooking, northward, the whole panorama of the park grounds.

INTERIOR.

The main entrance opens into a hall 82 feet long, 60 feet wide and 53 feet high, decorated in the modern Renaissance style. On the farther side of this hall three doorways, each 16 feet wide and 25 feet high, open into the central hall. This hall is 83 feet square, the ceiling of the dome rising over it 80 feet in hight. From its east and west sides extend the galleries, each 98 feet long, 85 feet wide and 35 feet in hight. These galleries admit of temporary divisions for the more advantageous display of paintings. The central hall and galleries form one grand hall 287 feet long and 85 feet wide, holding 8000 persons—nearly twice the capacity of the largest hall in the country. From the two galleries, doorways open into two smaller galleries 28 feet wide and 89 feet long. These open North and South into private apartments which connect with the pavilion rooms, forming two side galleries 210 feet long. Along the whole length of the north side of the main galleries and central hall extends a corridor 14 feet wide, which opens on its north line into a series of private rooms, thirteen in number, designed for studios and smaller exhibition rooms.

All the galleries and the central hall are lighted from above; the pavilion and studios are lighted from the sides. The pavilion and central hall are designed especially for exhibition of sculpture. The structure is to be used during the exhibition as an art gallery. The designer of this grand structure, Mr. H. J. Schwarzmann, states his object to have been to conform to strict classic outlines and proportions, so that the building will preserve, under all the varying changes of taste during the coming century, the unchangeable interest of the structures of those times; and consistent with this to express in the decoration and arrangement of the details, the purposes for which it is being erected—a national memorial in honor of the great dead of the republic at the close of its first century.

This grand structure is erected solely by the appropriations made for this particular purpose by the State Legislature of Pennsylvania and the city of Philadelphia.

The Passivity of Iron.

To produce in a certain manner the somewhat capricious phenomena of passivity, says M. de Regnon, I use iron wires or rods of fencing foil, the surface of which is protected, for a certain length, by a glass tube or a layer of mastic. The free extremity, with a length of 2 to 3 centimetres, is plunged entirely in the acid.

I. An electric current *entering* by the iron into nitric acid, renders the iron passive while the current lasts; and after rupture of the current the iron remains passive. A current *leaving* by the iron destroys the passivity, and this change of state may be reproduced indefinitely. Iron acting as positive electrode in a mixture of sulphuric acid and water, liberates oxygen, is weakly attacked, and becomes passive for nitric acid. A reversal of the current's direction destroys the passivity.

II. One may *stop* the attack of iron by nitric acid, by touching or (better) rubbing it in the nitric acid with a body that is a good conductor and not attacked by the acid, such as platinum or conducting charcoal. This action of charcoal explains why steel and cast iron become passive of themselves. The experiment succeeds better the larger the surface, of contact, and the larger the total surface of the body which is not attacked. Further, the more concentrated the acid, the more easily is the passivity obtained.

III. The contact of a metal attacked by acid destroys, it is known, the passivity. If, then we put in contact a passive iron wire and an active wire, the final effect will be either the attack or the passivity of both wires. We may unite in a single experiment these two contrary results; immerse the extremity of a piece of foil (the whole surface of which is exposed) in nitric acid to a length of 2 or 3 centimetres. After a short attack, the part immersed becomes passive, and is covered with a dark deposit containing carbon. This done, if we suddenly immerse the foil to a fresh length of 3 or 4 centimetres, the attack commences from above, is propagated to the lower part, and, when the passivity is anew produced, we find the whole of the immersed length charged with black deposit. In this first case the active portion destroys the passivity of the extremity. If, on the other hand, we immerse the foil slowly in the acid, it will remain passive without the part newly immersed undergoing the least attack, as is evident from its clear and bright look. Here the passive extremity communicates its state to the other portion.

IV. We may bathe the end of a wire in water, without destroying the passivity, provided care is taken not to immerse the wire in the water beyond the protective mastic. We may even scrape the wire, in the water, with another passive wire, or with the end of a clean tube of glass, without its state being changed, and this experiment quite destroys the explanation of passivity by formation of an insoluble deposit.

V. I have tried the action of other liquids after having each time bathed the passive iron in pure water, and I have verified the proposition (already known). Oxidating substances are without action on passive iron. Deoxidating substances destroy the passivity.

VI. We may perceive that the actions of contact are reducible to electric actions, by means of the following experiments:

1. Connect together a wire of iron and a wire of platinum terminating in a spiral. Plunge the free end of the iron in the acid, and when the attack has commenced, introduce the spiral of platinum into the same glass, or into another glass containing acid, and put in communication with the first by a bridge of platinum. In an instant the iron becomes passive. The same experiment succeeds on connecting iron with conducting charcoal instead of platinum.

2. On the other hand, connect an iron and a copper wire. Plunge in the acid the free end of the iron, and render it passive by rubbing with platinum or with passive steel. This done, introduce the end of the copper wire into the same glass, or into another glass, as above, and immediately the iron is attacked.

3. Plunge into a glass filled with acid, or into two glasses connected by a bridge of platinum, the two extremities of two wires of iron connected exteriorly by a conductor. If we then rub in the liquid one wire only with platinum, both become passive; if we touch one wire with copper, both become active. These experiments are more delicate than the preceding, owing to the electric resistance of the liquid.

VII. The passivity may be destroyed in another manner, which shows the *role* of electricity. Connect the wire of a galvanometer, on one hand, with a spiral of platinum or copper which has been plunged in a conducting liquid that does not destroy the passivity, *e. g.*, a solution of nitrate of potash, and, on the other hand, with a wire of iron protected by mastic as explained. Then close the circuit by introducing the iron into the nitrate; the needle indicates an immediate and permanent current going from the galvanometer to the iron. We obtain the same result (which is easy to foresee), if, after rendering the iron passive, and washing it well with water, we immerse it an instant in a liquid which destroy the passivity; *e. g.*, in a solution of marine salt. But if we close the circuit after having washed the passive iron in water, or in a liquid *without* action on the passivity, we perceive a slight movement of recoil in the needle, indicating a first current of very short duration going from the iron to the platinum by the galvanometer; then the needle is forced in the contrary direction, and indicates a permanent current from the platinum to the iron. But one finds that immediately this action is produced, the iron is become active again.

VIII. All these experiments seem to me to legitimize the following conclusions: 1. Most of the causes which produce passivity in iron may be reduced to a voltaic force carrying the oxygen to the iron and polarizing it on the surface of this metal. 2. Most of the causes which destroy the passivity of iron may be reduced, either to a voltaic force of the contrary direction or to a current due to polarization of the oxygen, and by which it is exhausted; or, lastly, to an absorption of the polarized gas by a body that has avidity for oxygen. I hope shortly to show that these phenomena of passivity are more general than is supposed.

IX. We can now explain two experimental precautions that were insisted on: 1 It is necessary to protect, with an impermeable layer, the portion of wire which is not plunged in the acid, otherwise the acid vapors bring this portion into a state which is opposed to the passivity of the immersed part. 2. When we bathe the passive extremity in water, the metal should not be immersed above the mastic otherwise the passivity is immediately destroyed for a circuit is closed by which the polarization is exhausted.

Most of the above experiments were made with nitric acid, marking 35° B.

Hecla Furnace, Ironton, O., is making 12 tons per day of cold blast charcoal iron.

Metals.

ANSONIA

BRASS & COPPER CO.

19 and 21 Cliff Street,

(Adjoining Office of Phelps, Dodge & Co.)

Sheet Brass,	Sheet Copper,
Planished Brass,	Planished Copper,
Polished	Copper Rivets & Burs,
Brass Door	Braziers' & Bolt
Rails,	Copper,
Brass Wire,	Braziers' Rivets,
Hayden's Patent	Copper Tubing,
Brass Kettles,	Copper Bottoms,
Brass Tubing,	Copper Wire,
Lamp Burners,	Iron Wire,
Sun Burners,	Fence Wire.

A large variety of Wood and Bronze Case Clocks.

MANUFACTORIES AT ANSONIA, CONN.

Phelps, Dodge & Co.,

IMPORTERS OF

TIN PLATE,

Sheet Iron, Copper, Pig Tin, Wire, Zinc, etc.

MANUFACTURERS OF

COPPER and BRASS.

Cliff St., bet. John and Fulton,

NEW YORK.

A. A. THOMSON & CO.

Importers and Dealers in

Tin Plate, Sheet Iron,

ZINC, COPPER, WIRE,

Block Tin Spelter, Solder, &c.

Nos. 213 and 215 Water and 116 Beekman Sts.,

NEW YORK.

P. O. Box, 61.

T. B. CODDINGTON & CO.,

25 & 27 Cliff St., New York.

Importers of

TIN PLATES,

And METALS of all descriptions.

N. L. CORT & CO.,

Importers and Dealers in

Tin Plate, Pig Tin,

SHEET IRON, SOLDER,

ZINC, &c., &c.

220 & 222 Water and 115 & 117

Beekman Streets,

N. L. Cort, C. P. Cort, NEW YORK.

SCOVILL MFG. CO.,

419 & 421 Broome St., New York.

MANUFACTURERS OF

SHEET AND ROLL BRASS,
BRASS AND COPPER WIRE,
GERMAN SILVER, BRASS BUTT HINGES,
KEROSENE BURNERS.
METAL BLANKS CUT TO ORDER.
CLOTH AND METAL BUTTONS, in every variety.

PHOTOGRAPHIC GOODS.

MANUFACTORIES:

Waterbury, Conn.,
New Haven, Conn.,
New York City.

Vermont Spiegel.

A superior article worthy the attention of consumers, both in price and quality. Send for analysis to JOHN W. QUINCY

98 William Street, New York.

EVANS & ASKIN

BIRMINGHAM, ENGLAND,

Refiners of Nickel and Cobalt.

SOLE AGENTS,

VAN WART & McCOY,

43 Chambers St., New York.

Nickel and Cobalt always in stock.

Metals.

Waterbury Brass Co.

CAPITAL, - - $400,000.

JOHN SHERMAN, Agent,

No. 52 Beekman Street, NEW YORK.

Mills at WATERBURY, CONN.

Sheet, Rolled and Platers' Brass,

GERMAN SILVER,

Copper, Brass and German Silver Wire,

BRASS AND COPPER TUBING,

COPPER RIVETS & BURS,

BRASS KETTLES,

WASH BASINS,

Door Rail, Brass Tags & Step Plates.

PERCUSSION CAPS,

POWDER FLASKS,

Metallic Eylets,

Shot Pouches,

Tape Measures, etc.

Manhattan Brass Co.,

Manufacturers of

Sheet Brass,	Olmsted Patent Oilers,
Brass & Copper Wire,	Prior Patent Oilers,
Copper Rivets & Burs,	Broughton Patent Oilers,
Brass Tubing,	Brass, Tin & Zinc Oilers,
Spelter Tubing,	Baby Carriage Hardware,
Satchel Frames,	Stationers' Hardware,
Hurricane Lanterns,	

"Domestic" Embossing and Fluting Machine, &c.

Office, 83 Reade St., N. Y.

Works, 1st. Ave. 27th to 28th Sts., N. Y.

H. H. Hayden, J. H. Crane, } Managers. } H. L. Coe, J. H. White.

BENEDICT & BURNHAM MFG. CO.

MANUFACTURERS OF

Rolled and Sheet Brass and German Silver, Brass, Copper and German Silver Wire, and Beading.

Plain and Fancy Tubing, Brass and Copper Rivets and Burs, Brass and German Silver Castings, Piano-Forte and Wrought Brass Butt Hinges, Coal Oil Burners, Lamps and Lamp Trimmings of every description, Patent Lamp Scissors, &c., &c.

Depots—78 Reade St., N. Y., 57 Oliver St., Boston, and 17 N. Seventh St., Philadelphia.

Capital $400,000.

Chas. Benedict, President and Treasurer.
Chas. Dickinson, Secretary.

BALTIMORE COPPER WORKS.

POPE, COLE & CO.,

Are now Purchasing

Copper Ores

and smelting and refining at these works, where, with experienced workmen and unusual facilities, we are turning out Ingot and Cake Copper of unequalled purity and toughness.

We are prepared to buy Ores, Matte, Regulus and other furnace material, in any quantities.

Office, 57 South Gay St., Works at Canton, } Baltimore, Md.

A. HARNICKELL,

22 Cliff Street, New York,

Offers from store

Baltimore Ingot Copper,

Lake Copper, Braziers Sheets, &c.

Old Copper bought.

W. & J. TIEBOUT,

Manufacturers of

BRASS GOODS,

Galvanized & Ship Chandlery

HARDWARE.

290 Pearl Street, New York.

JOHN W. QUINCY,

98 William Street, New York,

Dealer in

AMERICAN AND FOREIGN SPELTER,

COPPER, TIN, NICKEL,

And Metals generally.

Geo. A. Boynton,

BROKER IN IRON

70 WALL ST, N.Y.

Fuller, Dana & Fitz,

Importers and Commission Merchants,

BOSTON. . . . 110 North Street.

in Plates, Sheet Iron, Metals, Iron, Steel, Etc.

Wrought Iron Beams, &c., for Buildings.

Exclusive Boston Agents for the sale of Morris, Tasker & Co.'s Lap Welded Boiler Tubes. Patent Cold Rolled Shafting. The "Burden Best" Iron. *Tensile Strength* 53,000 lbs. Union Iron Mills' *Own Patent* Beams, Channels, Etc. The Celebrated Bessemer Steel. Brown's *Original* Concord Axles. The Salem Lead Co.'s Lead Pipe.

☞ SWEDISH, NORWAY ENGLISH, AMERICAN and SCOTCH IRON. RUSSIA SHEET IRON.

Fuller, Dana & Fitz's *Price List on application.*

Metals.

The Plume & Atwood Mfg. Company,

MANUFACTURERS OF

SHEET and ROLL BRASS and WIRE,

German Silver and Gilding Metal,

Copper Rivets and Burs,

Kerosene Burners,

Shoe Eyelets, Lamp Trimmings, &c.

80 Chambers Street, New York.

13 Federal Street, Boston.

Rolling Mill, THOMASTON, Ct. | Factories, WATERBURY, Ct.

BROOKLYN Brass and Copper Co.,

100 John Street, N. Y.,

Manufacturers of

Copper Sheets, Bolts, Wire, Tubes & Bottoms, Roll Brass, Wire, Tubing & Rivets.

Zinc Plates, Sheets and Tubes. Also, Patent Metal for Roofing, Linings for Bath Tubs, Refrigerators, &c.; considered the best metal for Signs and Reflectors.

JOHN DAVOL & SONS,

100 John Street, N. Y.,

Dealers in

Ingot Copper, Spelter, Tin, Lead, Antimony, Solder & Old Metals.

Holmes, Booth & Haydens,

49 Chambers Street, N. Y.

ESTABLISHED 1853.

CAPITAL, - - $400,000.

Manufacturers of all kinds of

Brass, Copper & German Silver,

ROLLED AND IN SHEETS.

BRASS & COPPER WIRE,

Tubing, Copper Rivets & Burs.

BRASS & IRON

JACK CHAIN, DOOR RAIL.

German Silver Spoons,

SILVER PLATED FORKS & SPOONS,

Kerosene Burners, &c.

Works at Waterbury, Conn.

Wire, etc.

Geo. W. Prentiss & Co.,

HOLYOKE, MASS.,

MANUFACTURERS OF

IRON WIRE,

Bright, Coppered, Annealed and Tin Plated.

Coppered Pail Ball Wire, Bolt, Screw, Rivet, Belt Hook and Buckle Wire; Wire for the manufacture of Pins, Hair Pins, Wire Cloth, Heddles, Reeds, &c.

Also, Clock, Machinery, Spiral Spring and Piano Pin Wire, Plated Piano String Covering Wire, Plated Hook and Eye and Button Eye Wire, Tinned Broom Wire, fine Tinned Wire, and Tin-Plated Wire of all sizes and for all purposes. A specialty is made of the manufacture of

GUN SCREW WIRE

of all sizes up to one half inch in diameter, straightened and cut to order. Special attention is given to finishing orders to sample for particular purposes, where exactness of size is required. ☞ We work only the best Brands of Norway and Swedes Iron.

ROEBLING'S WIRE ROPE

For Best

IRON or STEEL WIRE HOISTING, RUNNING or STANDING ROPES, or BEST GALVANIZED CHARCOAL WIRE ROPES FOR SHIP'S RIGGING,

Address, JNO. A. ROEBLING'S SONS, Manufacturers, Trenton, N. J. or 117 Liberty St., N. Y.

Wheels and Rope for transmitting power long distances. Send for Circular and Pamphlet.

SPRAGUE SASH WEIGHT CO.,

YOUNGSTOWN, OHIO,

Manufacturers of

SPRAGUE'S IMPROVED

Sectional Sash Weights.

Orders solicited from all parts of the country.

Wire, etc.

National Wire and Lantern Works.

Warehouse, 45 Fulton Street, New York.

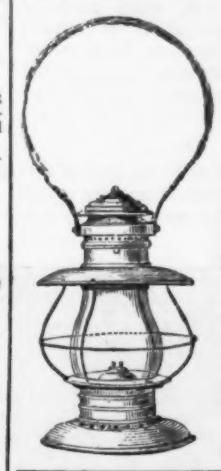
HOWARD & MORSE,

MANUFACTURERS OF

BRASS, COPPER AND IRON

WIRE CLOTH

Ship and Railroad Lanterns,



Signal Lights, Conductors' Lanterns

ADJUSTABLE GLOBE HAND LANTERN,

DESK AND OFFICE RAILING

Riddles, Coal and Sand Screens,

NURSERY FENDERS & SPARK GUARDS

Ornamental Wire Fence.

P. W. GALLAUDET.

Banker and Note Broker,

Nos. 3 and 5 Wall Street,

NEW YORK.

HARDWARE, METAL, IRON, RUBBER, SHOE, PAPER AND PAPER-HANGINGS, LUMBER, COAL AND RAILROAD PAPER WANTED.

ADVANCES MADE ON BUSINESS PAPER AND OTHER SECURITIES.

SAMUEL PARKER & CO.,

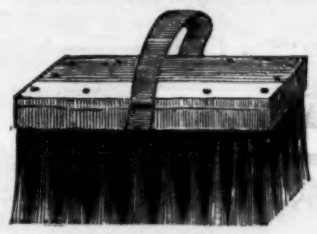
WETHERSFIELD, CONN.

WEAVERS OF

Brass, Copper, Steel and Iron Wire Cloth

Of every description.

PLAIN & LANDSCAPE WIRE WINDOW SCREEN CLOTH a specialty.



Steel Casting Brush.

STEEL SPARK CLOTH

For Locomotives, and all heavy grades of Wire Cloth for Coal Screens, Window Guards, etc.

Brass, Iron, Steel & Galvanized Riddles,

Wire Flower Stands,

STEEL CASTING BRUSHES, STEEL BROOMS, STEEL FLUE BRUSHES,

Made from the best tempered Flat Steel Wire.

All goods warranted to give satisfaction.

Send for Illustrated Price List.

Guns, Rifles, Revolvers & Sporting Apparatus.

MANUFACTURERS AND IMPORTERS.

American Goods SUPPLIED AT Manufacturers' Lowest Prices.

EDW. K. TRYON, Jr., & CO.,

19 North Sixth and 220 North Second Sts., Philadelphia, Pa.

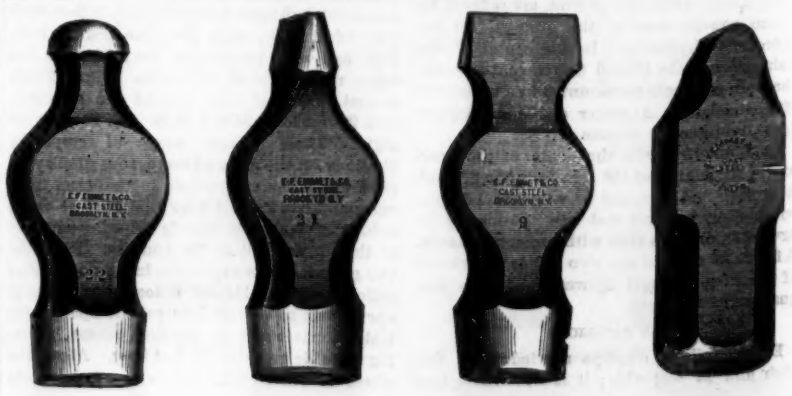
EMMET HAMMER CO.,

Manufacturers of all kinds of

HAMMERS AND SLEDGES AND CONTRACTORS TOOLS,

BROOKLYN, E. D., NEW YORK.

All our goods are branded "E. F. EMMET & CO., Brooklyn, N. Y." None genuine without the above brand.



Wire, etc.

Washburn & Moen Mfg. Company

WORCESTER, MASS.

Established 1831.

Philip L. Moen, Prest. Wm. E. Rice, Treas
Chas. F. Washburn, Sec'y

MANUFACTURERS OF

IRON AND STEEL WIRE.

WIRE RODS of all Grades; Round Iron, Rivet quality, 3-16 in. to ½ in., cut to any length.

Owners and exclusive Operators of the

PATENT CONTINUOUS MILL,

Producing Iron and Steel WIRE, in coils of 100 pounds, without SEAM or WELD.

Plain and Patent Galvanized Telegraph Wire,

Market and Stone Wire, Annealed Fence and Grape Wire in long lengths; Coppered Pail-Ball Wire; Rope, Bridge, Bolt, Screw, Rivet, Buckle and Chain Wire. Wire for the manufacture of Card Clothing, Heddles, Reeds, &c. Piano-string Covering Wire, Tinned Broom Wire and Tinned-plated Wire of all sizes. A specialty is made of Clock, Machinery, Gun Screw and Spiral Spring Wire, and Refined Wire to Pattern for particular purposes, from selected stamps of Norway Iron. Any grade of Wire furnished, Annealed, Bright, Polished, Coppered, Galvanized or Tin Plated. Wire furnished, Straightened and Cut to any length.

Steel Crinoline Wire, Patent Linen finish.
Unrivalled Steel Music Wire.

Steel Wire for Springs, Needles and Drills. Market Steel Wire kept in stock, all sizes.

Warehouse, 42 Cliff Street, NEW YORK.

THE

Gilbert & Bennett Mfg. Co.,

GEORGETOWN, CONN.,

MANUFACTURERS OF

Iron Wire, Curled Hair

AND GLUE.

Brass, Tinned and Iron Wire Sieves, Coal, Oat and Hair Sieves, Hair and Wire Gravy Sieves, Brass and Iron Riddles, Brass and Iron Wire Cloth, Cheese Safes, Coal and Sand Screens, Wire Ox Muzzles.

Also Painted Screen Wire Cloth.

Wood Handle Stove Cover Lifters, Coal Hods Pressed and Patent Cast Shovels, Stove Scrapers and Pokers, Galvanized Conductor Strainers.

Gilbert's Rival Ash Sieve.

UNION METALLIC CLOTHES LINE

WIRE.

The highest price paid for Cattle's Tails and Hog's Hair.

WAREHOUSE,

273 Pearl Street, New York.

CLEVELAND WIRE WORKS.

W. S. TYLER,

756 & 758 St. Clair Street, Cleveland, O.

Manufacturer of

STEEL WIRE CLOTH,

Steel Locomotive Spark Wire Cloth, Steel Smut Cloth, Steel Mill Screen Cloths, Steel Riddles, Coal and Sand Screens.

RUSSIA SHEET IRON,

Perfect and No. 1 Stained, in Store and for sale at lowest rates by

A. A. THOMSON & CO., 213 & 215 Water St., NEW YORK.

Iron in Tennessee.

A correspondent of the Cincinnati *Gazette*, writing from La Grange Furnace, says:

La Grange Furnace is situated near the Tennessee River, on the eastern side, about six miles below the crossing of the railroad leading from Louisville, Ky., to Memphis. The river at this point flows in a northerly direction, bearing a little west. Small creeks flow into it at various points, varying from one to three miles apart. There are no high lands along the river; no heavy rocks, such as are found in the hills of Southern Ohio. The banks are low, and particularly on this side the back-water, when the river rises, flows back upon the land from one-half to one mile. There are high points here and there running closer to the river, but I speak of the general formation. The land at this distance from the river rises gradually; the soil is sandy loam and clay, the subsoil a vast bed of river gravel. As this inclined plane recedes from the river it rises gradually to the hight of 100 to 150 feet, and is broken by the streams mentioned, and again by their branches, so that the country presents a rolling, undulating, rather than a hilly appearance.

The La Grange Furnace is situated upon one of these creeks, Leatherwood, the valley of which is from a fourth to one-half mile in width of good soil for agricultural purposes.

Crossing this valley, and in less than a half-mile from the furnace stack, we come to an ore "bank," open and being worked. The miners began by excavating ("stripping") the earth a the foot of the hill, the "bench" being about fifty feet long. At the depth of about ten feet they came to the ore. There is no rock overlying the ore, but the gravel spoken of rests on the ore, and mingles with it through the upper part of the vein. They have worked this mine over thirty years, and have mined, or, rather, quarried, into the hill about 200 feet, taking the ore out level with the foot of the hill at the point of starting. The hill rises to the hight of forty-five feet above the point at which the mine was opened. After opening the mine, until they had excavated about one-fourth of an acre, they mined from the floor down to the depth of about ten feet below the point of entrance. At present they are mining further into the hill, and also going deeper down into the foundation of it. A measurement of the face of this mine gave the following result: From the surface of the earth we have soil, or gravel, twenty feet; iron ore down to the present floor, thirty-one and a half feet; but they have cut down into this floor a track across the mine four and a half feet deep, preparatory to mining out a trench across the mine: this four and a half to thirty-one and a half gives thirty-six feet of ore to twenty feet of soil. Nor is this all. At a short distance, less than fifty yards from the entrance to this mine, the company sank a well to the depth of thirty-six feet down, not through, but into the ore, and at the depth of thirty-six feet they blasted out iron ore. So that the bottom of the well is, as the sides, simply iron ore.

A small stationary engine pumps the water from the mine, that comes in from time to time and in case of storms, and the mining goes on nicely with no inconvenience. They do not raise the ore by any machinery, but simply by a graded road, driving the wagons down into the mines to load them. The superintendent of mines, who, by the way, has been working these mines since 1848, assured me that the miners were getting out from eight to ten tons each per day. In fact, all that has to be done is to break up the ore by blasting and with sledges, to the size for loading. Of course, there are seams in the ore. If there were not it would be more difficult to mine. The matrix of the ore is generally a red pipe clay, though in places the gravel and sand take its place. The top of the ore, say the upper eight or ten feet, has more clay and gravel mixed into it, and the deeper the mining the more solid the ore. There is some flint in the ore, but that is confined to the upper portion, as the lower part is free from flint, and is almost solid. In many places in Southern Ohio, miners can afford to remove a foot of earth for an inch of ore, and not infrequently six feet of earth are removed for ten inches of ore. But here we have a mine that requires only one-half inch of earth to an inch of ore. The superintendent told me that some eighteen or twenty years ago, in a bank a half mile from this ore, he, having stripped a bench, threw down at one blast 315 wagon loads of ore. They didn't weigh ore then as now, but the loads were estimated at one and a half tons each. Mr. Garrett, the president of the La Grange Iron Works, informed me that the present company had taken from this mine a little over 50,000 tons of ore since it had been working these furnaces (the La Grange and Clark, the latter being situated one mile north of La Grange), and yet less than one-fourth of an acre of soil has been disturbed. The general form of the ore is peculiar. It lies in a mass, but the mass is made up of nodules, "kidneys," boulders and blocks of irregular form, ranging in size from an egg—to a small house I was about to say, but I will say a hogshead—blocks or boulders the size of a flour barrel being very common; many of these are hollow. The ore is six inches to one foot in thickness, the inner portions being the finest of ore, almost a pure oxide of iron. Some of these are full of water, which seems to have been put in and then the cask hermetically sealed all together. The formation is difficult of description. These nodules and blocks are packed in close and then cemented, as it were, with the clay above mentioned. If the reader will imagine an immense lake of clay of such consistency that a block of ore would readily sink in it, then imagine millions of tons of ore, in blocks and nodules, as I have spoken of, thrown into this lake as if "dumped" from some huge cart, and then heaped and piled up until fair sized hills are made here and there over it, and over all this a coating of gravel, clay and sand from five to twenty-five feet thick, as if for the protection of the mass, he will have some idea of the formation.

The ore has evidently been deposited by the action of water, but it is equally evident that since its deposit it has been heated to a very high temperature, and there can be but little doubt that the hills and ridges between the streams are the effect of volcanic action—the original deposit was quite extensive, and the action referred to may easily have disturbed the formation, leaving it uneven as to thickness.

Mines are worked at various points along the ridge, and the outcrop at various points shows that it is general across the country to the Cumberland River, where the Dover Furnace, ten miles from here, is working the same ore.

The ore is brown hematite, portions of it having the appearance of specular ore. An analysis of it is as follows: One piece (selected, of course) analyzed by E. S. Wayne, of your city, gave the following result: Peroxide of iron, 95·34; phosphorus, a trace; sulphur, a trace; lime, 0·21; silica, 3·71; loss, 0·74; equal to 65·75 of pure iron.

An analysis by J. Blodgett Britton, of Philadelphia, of several pieces, fair average, of the ore as it comes on the stock bank, gave the following result: Water, 9·10; insoluble silicious matter, 10·61; soluble silicious matter, 1·40; pure iron (in form of sesquioxide) 57·91; oxygen with iron, 23·41; alumina, 1·38; lime, 0·40; sulphur, 0·03; phosphorus, 0·06. Double assay yielded 56·10 metal, cast iron. Two tons of roasted or burnt ore makes one ton of iron, one blast with another, at the furnace.

The First American Anthracite Iron.

A correspondent of the Iron and Steel Association, writing from Cincinnati under date of Aug. 18th, says:

Whilst the many familiar with the history of iron making accord to Mr. Neilson, of Scotland, the credit for his invention of the hot blast as applicable to the anthracite blast furnace, they forget the fact that as far back as 1833 (one year before Mr. Neilson filed his patent papers, and three years before Parliament granted him the right to the patent, and five years before Mr. Crane conceived the idea of a practical result from Mr. Neilson's patent—*vide* British Association's Report for 1838), Dr. Frederic W. Geisenhainer, of Schuylkill county, Pennsylvania, was experimenting with ovens for heating air before its introduction into the blast furnace; and the result of his experiments on a small scale was so satisfactory that his caveat for the patent was prepared. His experiments continued through 1837, '38 and '39 in connection with Mr. William Lyman, who was then running the furnace at Pottsville with charcoal. These gentlemen were encouraged by Mr. Nicholas Biddle (of United States Bank fame), of Philadelphia, and Col. Joseph Paxton, of Catawissa, Pennsylvania; the former offering a premium of one thousand dollars for the first ton of anthracite pig iron made in this country.

On the 18th of January, 1840, Mr. Lyman invited a number of gentlemen to Pottsville to witness the working of his furnace with anthracite coal. All that Dr. Geisenhainer had claimed and taught seven years before was then practically demonstrated, and to Mr. Lyman was awarded the premium for the first anthracite pig iron made in this country. The furnace in which it was made was then christened the "Pioneer Furnace," and is still known by that name. On the occasion of this celebration Mr. Biddle made this prophetic speech:

"And this, after all, is the great mystery—the substitution of what is called the hot blast in lieu of the cold blast. Let us see the changes which this simple discovery is destined to make. As long as the iron ores and coal of the anthracite region were incapable of fusion the ores were entirely useless, and the coal nearly unavailable for manufactures, while, as the disappearance of timber made charcoal very expensive, the iron of Eastern Pennsylvania was comparatively small in quantity and high in price, and the defective communication with the interior made its transportation very costly. The result was that, with all the materials for supplying iron in our own hands, the country has been obliged to pay enormous sums to Europeans for this necessary. * * * This dependence is deplorable; it ought to cease for ever; and let us hope that, with the new power this day acquired, we shall rescue ourselves hereafter from such a costly humiliation. We owe it to ourselves not thus to throw away the bounties of Providence who in these very materials has blessed us with a profusion wholly unknown elsewhere. With these resources you would have abundant employment, if you could only supply the present wants of the country for which we are now dependent on foreigners. But the sphere of demand is every day widening for the consumption of iron. The time has come when nothing but iron roads will satisfy the impatience of travelers and the competition of trade. The time is coming when iron ships will supplant these heavy, short lived and inflammable structures of wood. We shall not long be content to cover our houses with strips of wood under the name of shingles, prepared for the first sparks, if we can have low priced iron, in which event, too, the present pavements of our towns would be superseded by footways of iron. * * * * If the coal and iron have made Great Britain what she is, if this has given her the power of four hundred millions of men and impelled the manufactories which have made us, like the rest of the world, her debtors, why should not we, with at least equal advantages, make them the instruments of their own independence?"

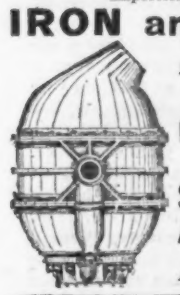
The following year Mr. C. E. Detmold first successfully introduced the use of gases from the tunnel head of a furnace for the heating of the blast, as well as for the generation of steam. This was the crowning achievement in the manufacture of pig iron. The dawn of the iron age was past, with the realization of which all are now familiar. How few remember, or associate their success with Geisenhainer and Detmold! It would be a proper tribute to the memory of Dr. Geisenhainer if the iron men of Pennsylvania would erect an iron statue of him, and so locate it at the Centennial Exhibition that it would be surrounded by the anthracite coals and irons of Pennsylvania.

Iron.

NEW YORK.

GAM'L G. SMITH & CO.,
IRON WAREHOUSE,
342, 344 & 346 Pearl Street, New York.,
Importers and Dealers in
IRON AND STEEL,
COMMON AND REFINED BAR IRON,
SHEET AND PLATE IRON,
Rod, Hoop, Band, Scroll, Horse Shoe, Angle and Tee Iron,
PIG IRON,
OLD RAILS,
WROUGHT IRON BEAMS.
Iron of all sizes and shapes made to order.

PIERSON & CO.,
Established 1790,
22 & 26 Broadway, 77 & 79 New St.,
EW YORK CITY,
AGENTS
Burden's Best Iron
And Burden's H. B. & S. Iron.
All sizes and shapes in stock.

JACKSON & CHACE.
206 & 208 Franklin St., N. Y.,
Importers and Dealers in
IRON and STEEL.

Agents for
JOHN A. GRISWOLD & CO'S
Bessemer Steel.
MACHINERY STEEL,
Cast Steel and
SPRING STEEL,
ANGLE and T IRON.
Special Irons for Bridge and Architectural Work.

ABEEL BROTHERS,
Successors to JOHN H. ABEEL & CO.,
Iron Merchants,
190 South Street and 365 Water, N. Y.
ULSTER IRON
A full assortment of all sizes constantly on hand.
English and American Refined Iron of choicest brands.
Common Iron.
Band, Hoop and Scroll Iron.
Sheet Iron.
Norway Nail Rods.
Norway Shapes.
Cast, Spring and Tire Steel, etc.

A. R. WHITNEY. J. HENRY WHITNEY.
A. R. Whitney & Bro.,
Manufacturers of and Dealers in
IRON,
56, 58 & 60 Hudson,
48, 50 & 52 Thomas, and
12, 14 & 16 Worth Sts., } NEW YORK.
Our Specialty is in
Manufacturing Iron
Used in the Construction of
Fire-Proof Buildings, Bridges, &c.
AGENCY OF
Abbott Iron Co. Boiler Plate & Tank Iron.
Glasgow Tube Works Boiler Flues.
Poncoyd Iron Works Shafting.
Passaic Rolling Mill Angles and Tees.
A. R. Whitney & Bro.'s Rivets.
Whitney's Best Bar Iron.
Whitney's Wrought Iron Beams and Channel Iron.
Books containing Cuts of all Iron now made, and Sample Pieces at office. Please address 58 Hudson Street.

BORDEN & LOVELL,
Commission Merchants
70 & 71 West St.,
Wm. Borden, L. N. Lovell, — New York.
Agents for the sale of
Fall River Iron Co.'s Nails, Bands, Hoops & Rods,
AND
Borden Mining Company's Cumberland Coals.

T. B. CODDINGTON & CO.,
25 & 27 Cliff St., New York.
Bar Iron, Sheet Iron, &c
Of every description

Iron.

NEW YORK.

Conklin & Huerstel,
"IRON MERCHANTS,"
99 Market Slip, N. Y.
English and American Refined Iron,
COMMON IRON,
Band, Hoop and Scroll Iron,
Horse Shoe Iron & Horse Nails,
Norway Nail Rods and Shapes,
Cast, Spring, Toe Calk and Bessemer Tire Steel.
Sole Agents for the Celebrated Horse-Shoe Brand
HORSE RASPS.

WM. GARDNER,
575 Grand, 414 Madison & 309 Monroe Sts.
Bar, Hoop, Rod, Band and Horse Shoe Iron.
AGENT FOR
Best Norway N. R. & Shapes,
Spring, Toe Calk, Tire & Sleigh Shoe Steel.

A. B. Warner & Son,
IRON MERCHANTS,
28 & 29 West and 52 Washington Sts.
BOILER PLATE,
Boiler Tubes, Angle, Tee & Girder Iron, Boiler and Tank Rivets.
Sole Agents for the celebrated
"Eureka," Pennocks,
"Wawasset," Lukens,
Brands of Iron. Also all descriptions of Plate, Sheet, and Gasometer Iron. Special attention to Locomotive Iron. Fire Box Iron a specialty.

Geo. A. Boynton
BROKER IN IRON
70 WALL ST, N.Y.

POWERVILLE
ROLLING MILL,
JOHN LEONARD,
450 & 451 West Street, NEW YORK.
Manufacturer of all sizes of MERCHANT IRON and HOOPS. Also Manufacturer of
Best Charcoal Scrap Blooms.
And Dealer in Old and New Iron.

Marshall Lefferts, Jr.,
90 Beekman St., New York,
MANUFACTURER OF
AMERICAN
Galvanized Sheet Iron,
AND AGENT FOR THE
Easton Sheet Iron Works, Easton Pa.
MANUFACTURER OF
Best Bloom, Charcoal & Refined Sheet Iron.
Galvanized Telegraph and Fence Wire
Galvanized and Tinned Roofing and Slating Nails.
Galvanized Hoop Iron of all widths.
Galvanized Staples.
Corrugated Iron for Roofing, plain or gal'd.
Galvanized Bars and Chains for Cemetry Railing.
Tin Plates, Spelter, and other Metals.

SCRAP RODS.
3-16 Round and Square,
For sale at the following prices, subject to change without notice.

1	Ton lots	$117·50	per 2240 lbs.
2½	"	115·00	" "
5	"	112·50	" "
10	"	110·00	" "

Net cash currency, or 30 days' draft. Cartage. $1 per ton, delivery in Boston. Address
NAYLOR & CO.,
Proprietors of the
NORWAY IRON WORKS,
New York, Boston or Philadelphia.

S. WHITNUM,
Manufacturer and Galvanizer of
Coal Hods, Water Pails, Baking Pans, &c.
Galvanizer of Sheet Iron, Nails, Spikes and Tinned Roofing Nails, Wire, Hoop and Band Iron. Iron Work for Cemetery Purposes furnished complete.
Factory, cor Clay and Franklin Sts.,
GREENPOINT, L. I.

Iron.

NEW YORK.

HAZARD & JONES,
BROKERS.
NEW & OLD RAILS,
FOREIGN AND DOMESTIC
Pig Iron,
Wrought & Cast Scrap Iron, &c.,
204 Pearl St., New York.

JAMES WILLIAMSON & CO.,
SCOTCH AND AMERICAN
PIG IRON,
No. 69 Wall St., New York.

B. F. JUDSON,
SCOTCH AND AMERICAN
PIG IRON,
Wrought and Cast Scrap Iron.
457 and 459 WATER STREET,
And 235 SOUTH STREET, near Pike,
NEW YORK.

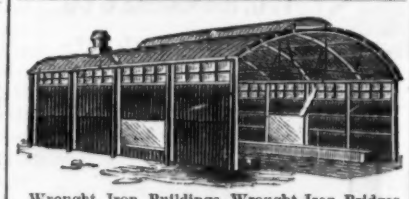
JOHN W. QUINCY,
98 William Street, New York
Dealer in
Anthracite & Charcoal Pig Irons,
OLD SCRAP and CUT NAILS.
Gibbs' Patent Lock Nut and Washer, and Fish Plates for Rail Roads.

Birmingham Iron Foundry,
BIRMINGHAM, CONN.
ESTABLISHED 1836.
Rolling Mills complete for the manufacture of
Iron and Steel Rails,
Merchant Iron, Copper, Brass.
And the rolling all kinds of Steel.
Also, Shears, Trip Hammers, Presses, Rotary and Alligator Squeezers, Iron and Composition Castings every description.
India Rubber and Paper Callenders, Grinding and Cutting Machines, Gearing, Shafting, &c, most approved patterns.

BOONTON
CUT NAILS,
HOT PRESSED NUTS,
Machine Forged Bolts,
Washers.
Fuller, Lord & Co.,
BOONTON IRON WORKS,
139 Greenwich Street, New York.

Swedish Iron.
A Variety of Brands, including
UB HP NB 03
BARS suitable for Steel of all grades, Wire, Shovels, Hoes, Scythes, Carriage Bolts, Nail Rods, Tacks, &c.
CHARCOAL PIG IRON for Bessemer and Car Wheels.
MUCK BARS for Steel Smelting and Re-rolling.
SCRAP or BAR ENDS.
Direct Agency for N. M. HÖGLUND, of Stockholm, represented in the United States by
NILS MITANDER,
69 William St., New York.
ABBOTT & HOWARD, Boston, Mass. AGENTS: ALBERT POTTS, Philadelphia, Pa.

DANIEL W. RICHARDS & CO.,
Importers of and Dealers in
SCRAP IRON,
Pig Iron,
OLD METALS.
YARDS:
88 to 104 Mangin St., 71 to 79 Tompkins St., Foot of Stanton St., E. R., NEW YORK.
OFFICES.
90 & 92 Mangin Street, 178 Pearl Street, 30 The Albany, Liverpool, England. } New York.


Wrought Iron Buildings, Wrought Iron Bridges, Corrugated Iron Roofs, Shutters, Doors, Flooring, &c. Corrugated Sheets of all sizes manufactured by Moseley Iron Bridge & Roof Co., No. 5 Dey St., N. Y.


Stretches the wire each way, is tightened with a common wrench, is self-fastening at each half turn of the spindle. Warranted for strength and durability. Sold at hardware stores generally. Byington & Northup, sole manufacturers, Rochelle, Illinois.

Iron.

NEW YORK.

HARRISON & GILLOON
IRON AND METAL DEALERS,
558, 560, 562 WATER ST., and 302, 304, 306 CHERRY ST.,
NEW YORK,
have on hand, and offer for sale, the following:
Scotch and American Pig Iron, Wrought, Cast and Machinery Scrap Iron, Car-Wheels, Axles and Heavy Wrought Iron; also old Copper, Composition, Brass, Lead, Pewter, Zinc, &c.

JOHN F. PFEFFERLE,
Dealer in all kinds of
SCRAP IRON AND OLD METALS,
BAR AND PIG IRON.
Also, New and Second-Hand Anchors, Chains and Machinery of all descriptions.
Nos. 531 & 533 Water St., N. Y.

PETTEE & MANN,
Dealers in
Ulster, English Refined & Common
BAR IRON,
Scotch and American Pig Iron, Wrought & Cast Scrap Iron, &c., &c.,
228 & 229 South and 449 & 451 Water Sts., N. Y.
The highest price paid for Wrought and Cast Scrap Iron. Storage for Pig, Bar and Railroad Iron taken at the lowest rates.
D. L. PETTEE. G. A. MANN.

OXFORD IRON CO.,
Cut Nails and Spikes,
R. R. Spikes, Splice Bars and Nuts and Bolts,
81, 83 & 85 Washington, near Rector St, N. Y.
JAMES S. SCRANTON, Agent.

DAVID CARPENTER,
Manufacturer of
HOT PRESSED NUTS,
And Dealer in
All kinds of Refined Bar & Horse Shoe Iron,
402 Water Street, New York.

U. O. CRANE.
BROKER IN
PIG IRON & METALS,
104 John St. New York.

EDWARD W. COIT,
IRON AND METAL
Commission Merchant,
No. 205 1-2 Walnut Street,
PHILADELPHIA, PA.
Boiler Plates, Boiler Tubes, Ship Plates, Specials.

BURDEN'S
HORSE SHOES.
"Burden Best"
Iron.
Boiler Rivets.
Burden Iron Works, H. Burden & Sons,
Troy, N. Y.

ESTABLISHED 1840.
PETER TIMMES,
Manufacturer and Galvanizer of
Wrought, Dock, Ship, Boat & Horse R. R. Spikes, Rivets, Nails, &c.
Nos. 281, 283 & 285 N. 6th St.,
Near junction of N. 2d St., Brooklyn, E. D.

Established in 1849.
THE
Jackson & Woodin Mfg. Co.
Successors to JACKSON & WOODIN,
Manufacturers of
Car Wheels and Cars,
BERWICK,
COLUMBIA, CO., PA.

Iron.

PITTSBURGH.

Pittsburgh Foundry.
A. GARRISON & CO.,
Manufacturers of
CHILLED AND SAND ROLLS,
Of acknowledged superior quality, at the lowest current prices.
Ore and Clay Crushers, and Rolling Mill Castings,
of every description.
Office and Warehouse, 209 Liberty Street,
PITTSBURGH, PA.

PENNSYLVANIA IRON WORKS.
EVERSON, MACRUM & CO.,
Pittsburgh, Pa.,
Manufacturers of every description of
Bar, Sheet and Small Iron,
Make a specialty in
Fine and Common Sheet Iron.

W. P. TOWNSEND & CO.,
Manufacturers of
WIRE and Black and Tinned Rivets
OF CHOICEST CHARCOAL IRON.
Rivets any diameter up to 7-16inch and ANY LENGTH required.
19 & 21 Market St., PITTSBURGH PA.

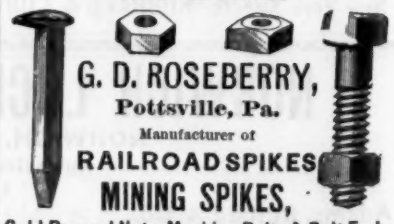
Boston Rolling Mills
Manufacture extra quality small Rods, from best selected Scrap Iron.
Swedish and Norway Shapes,
NAIL and WIRE RODS.
Also HORSE SHOE IRON.
BOSTON ROLLING MILLS,
W. R. ELLIS, Treasurer.
Office, 17 Batterymarch St., Boston.

"PEMBROKE"
Round, Square & Flat Iron.
"FRANCONIA" Shafting & Bar Iron.
Extra quality when great strain or superior finish is required. Also, Irons for ordinary work, like the "ENGLISH REFINED."
WM. E. COFFIN & CO.,
No. 8 Oliver Street, Boston.
New York Agents,
JEVONS STROUD & CO., 104 John St., N. Y.

PACKARD, GOFF & CO.
Youngstown, O.
Manufacturers of
Merchant Bar Iron.
Mills at Hubbard, O.; also Jobbers in
Nails, Nuts, Washers & Carriage Bolts.

Bonnell, Botsford & Co.,
Iron, Nails & Spikes.
YOUNGSTOWN, OHIO.

G. W. FAHRION,
Manufacturer of
Railroad, Ship and Boat
SPIKES.
Boat Spikes 3 to 18 inches long. Railroad Hook Heads, all sizes. NILES, OHIO.

Pottsville Spike, Bolt and Nut Works.

G. D. ROSEBERRY,
Pottsville, Pa.
Manufacturer of
RAILROAD SPIKES
MINING SPIKES,
Cold Pressed Nuts, Machine Bolts & Bolt Ends.

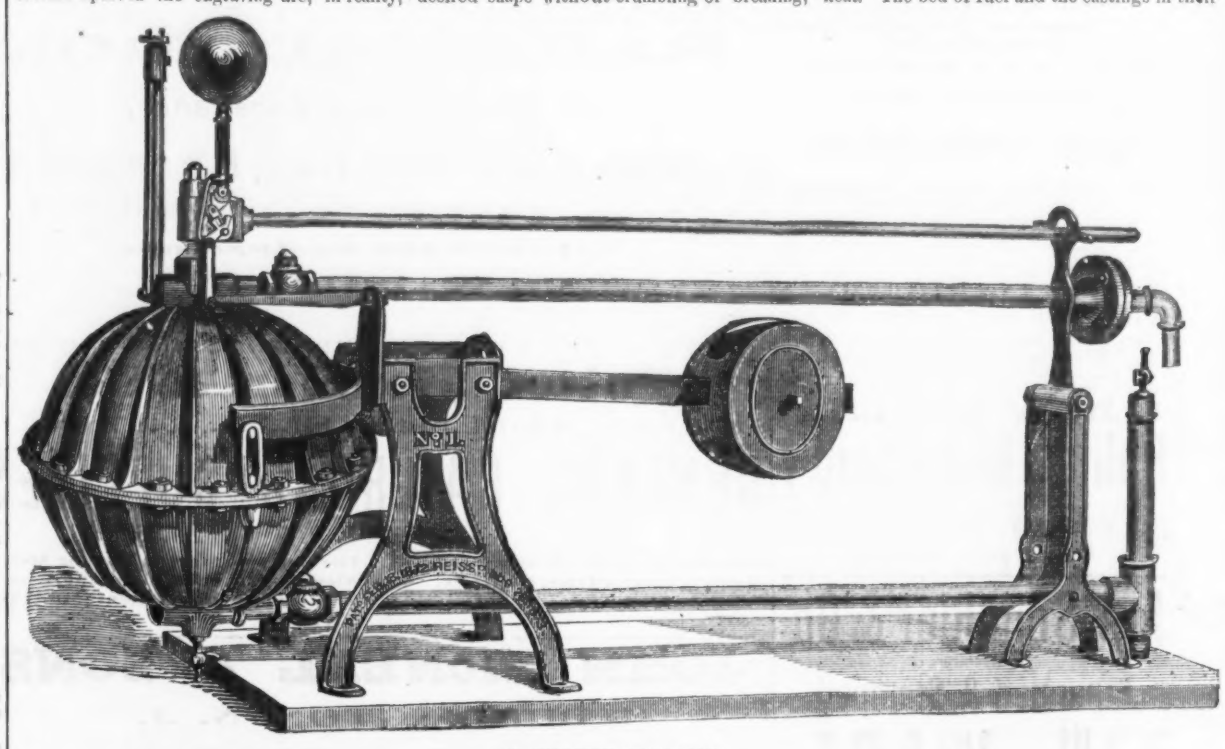
Girard Rolling Mill Co.,
Manufacturers of
MERCHANT BAR IRON AND T RAIL,
Nuts, Washers,
Collar, Machine and Bridge Bolts,
Patent Car Coupling Links & Pins.
L. S. TAYLOR, General Agent. GIRARD, OHIO.

TACKLE BLOCKS.
BURR & CO
Manufacturers of Waterman and Russell
PATENT IRON STRAPPED BLOCKS,
ALSO, MANUFACTURERS OF
ROPE STRAPPED BLOCKS.
31 PECK SLIP, NEW YORK

An Improved Steam Trap.

In using steam for heating purposes, where all or any portion of the heating apparatus is situated below the water level in the boiler, it is necessary to use a device of some kind for getting rid of the water of condensation as fast as it is formed, as otherwise it backs up in the pipes and stops radiation. In apparatus heretofore contrived for the purpose, water at a high temperature has been allowed to run to waste, excepting where it was sought to return it to the boiler, in which case it was necessary to trap it into a tank and thence, after considerable loss of heat, to force it back into the boiler by the aid of a pump.

The object of the invention now illustrated is to keep the heating apparatus free from water and to effect the restoration of the water to the boiler at a temperature only a few degrees lower than that of the steam itself, by the automatic operation of a simple trap, unaided by pumps or other means. This trap is represented in the accompanying engraving, and its construction will no doubt be readily understood from the same and the following explanation: Premising that the three connecting pipes which are broken apart in the engraving are, in reality,



AN IMPROVED STEAM TRAP.

extended sufficiently far horizontally to give them elasticity enough to allow the apparatus to operate easily.

It consists essentially of a hollow globe, supported by one end of a lever and counterbalanced by a weight at the other. The topmost pipe is connected with the steam space of the boiler, and is opened and closed to the globe by the automatic weighted valve seen on the top of the same. The larger pipe beneath supplies the globe or trap with the condensed water from the heating apparatus. It is provided with a check valve opening inward. The pipe at the bottom connects the globe with the water space of the boiler, and is furnished with a check valve opening outward. The operation is as follows: When the globe gets filled with a certain weight of the condensed water, it overbalances the weight at the other end of the lever, and descends. In descending, it moves the mechanism of the steam valve sufficiently to shift the center of gravity of the attached weight beyond its supporting point, which causes the ball to fall and open the steam valve. The steam pressure closes the check valve in the supply pipe, and allows the water in the trap to flow into the boiler through the bottom pipe, whose check valve opens to let it pass. When the globe has lost sufficient weight through the escape of the water, it is raised again by the weighted lever, and the steam valve is shut by the operation of its attendant mechanism. The condensed water is again admitted by the opening of the check valve in the supply pipe, and the operation is repeated continuously.

The steam valve apparatus is so nicely adjusted that the machine cannot, by any possibility, rest on a center; the valve must always be fully opened or closely shut. An air valve is also attached to the globe, by which the air is expelled.

The inventor estimates that the use of this trap secures a saving of certainly not less than ten per cent. over any other method of returning water of condensation to the boiler, where the coils are below the water level. Where the coils are all above the water line, and the return is made by "direct circulation," a large saving is still effected by using the trap, as its action is such as to force a continual circulation without intermission, and thereby to keep the coils nearly up to boiler heat all the time. He claims, as a consequence, that a given space may be heated to a given temperature with one-fourth less pipe, by this method, than by any other. The invention, which was patented by Mr. James H. Blessing, Feb. 13, 1872, has been in satisfactory practical operation in a variety of manufacturing and other establishments for the past year. Further information may be obtained of Messrs. Townsend & Blessing, care Townsend & Jackson, Albany, N. Y.

A Mammoth Anvil.—The foundry at Dutton street, Lowell, has for some time past been manufacturing a mammoth anvil block for the Nashua Iron and Steel Company. The block is in four sections, the last one of which has just been cast. The mold being carefully prepared, the men having charge of the work took their positions, and soon the heated iron was pouring from the cupola into the mold, which was filled with about 43,000 pounds in two minutes and fifty seconds. The weight of the whole block is nearly 80 tons, the largest ever manufactured in that city. A mammoth hammer, weighing about 10 tons, is to be furnished by the same firm. It will be cast in one section.

New Patents.

We take from the records of the patent office at Washington the following specifications of certain patents lately issued, which will be found interesting:

IMPROVEMENT IN THE MANUFACTURE OF STEEL FOR AGRICULTURAL IMPLEMENTS.

Specification forming part of Letters Patent No. 154,437, dated August 25, 1874, issued to James E. Atwood, of Pittsburgh.

CASE A.

This invention relates to a new compound metal for the manufacture of agricultural implements, &c., which may be easily annealed, hammered, tempered and fashioned into any desired shape without crumbling or breaking, as is the case in the ordinary malleable castings, commonly made, and which can be tempered in water afterward, instead of being case hardened, as is necessary in the ordinary castings for this purpose, and which will possess sufficient hardness, and be entirely free from porosity. It consists in a combination of ordinary cast or pig iron, wrought iron, and scrap or waste iron, melted and united in the presence of a flux, which may consist of a carbonate of lime, or marble dust, or quartz rock, or any of the silicic acid compounds which contain no potash or other alkalies which will injure the iron.

The combination of the ingredients forming the compound metal may be effected in various ways, either in crucibles, cupolas, furnaces, or gas or air furnaces, as may be desired. In fact, any furnace in which the proper degree of heat can be produced may be employed, and will answer the purpose. The proportion of the ingredients to be employed will vary somewhat, however, according to the means or apparatus used for effecting the combination.

When melted and combined in a crucible, cast and wrought iron are employed in equal parts; when in a cupola furnace, in the proportion of five-eighths of cast iron and three-eighths of wrought iron. The scrap may be added in any desired proportion to these ingredients, as the nature of the compound may require. When the ingredients are to be combined in gas or air furnace, three-eighths of cast iron, four-eighths of wrought iron, and one-eighth of scrap or old iron are used. These are all melted and combined in the presence of a flux consisting of carbonate of lime, or marble dust, or silicon, or the silicic acid compounds containing no potash or other active alkali which would injure the iron.

The scrap iron, before being added to the mass, is melted and rendered homogeneous in any convenient manner—in a blast or cupola furnace, for instance.

The prime object of the invention is to bring the metals into a perfect union in a molten state, and prepare them specially for casting in green sand molds, since the metal is brought to such a high, pure and hard state that it will lie in such molds, and all danger of explosions avoided.

Claim.—The improved compound metal for manufacture of agricultural implements, &c., consisting of cast iron, wrought iron and scrap iron previously melted, the whole being united in the presence of a flux, such as marble dust or its equivalents.

CASE B.

This invention relates to a new and improved process of decarbonizing or annealing refined iron and highly carbonized steel to dispense with much of the labor and apparatus that has heretofore been necessary in the decarbonizing or annealing process, and produce a finished article which will be ready for use without further treatment. The invention consists in decarbonizing or annealing metal castings, such as the mold boards of plows, and machinery castings in general, said castings being placed upon a bed of fire and raised to a cherry red heat, and then covered with a suitable fuel until the whole mass becomes thoroughly ignited; then the fire is "banked," by the use, preferably, of slag, cinder, ashes, sand, earth, or other suitable "banking" agents capable of shutting off all draft, for the purpose of retaining the heat for the desired length of time, so as to burn out the carbon or oxidize the same, and thus render the iron tough and malleable. The material from which the castings are made is composed of wrought cast iron, and steel may be substituted for either or added to the union of the same. The iron, after being thus treated, will be perfectly malleable, and may be readily welded and tempered. In carrying out the invention, select, preferably, old or waste iron, melt and cast into mold boards for plows, or castings of machinery in general, as per a process described in application filed simultaneously herewith, for a compound or mixture of metals. The castings thus produced are ready to be decarbonized or annealed. To effect such without the employment of cans or oxides, place the same upon a bed of fire in any common furnace, and raise the same to a cherry-red heat. The bed of fuel and the castings in their highly heated state are covered with suitable fuel and the furnace let run until the whole mass of fuel becomes thoroughly ignited. The fire is then banked, using for such any of the usual banking agents—for instance, slag, cinder, ashes, sand, earth, or other suitable material capable of preventing a draft—the object being to prevent any further combustion of the material, so as to retain the bed of fire and the castings in the high heat to which they are raised, and in such condition the fire and the castings are permitted to remain for a space, say about twelve or forty-eight hours, substantially as hereinafter specified.

The length of time to which the castings are treated will depend upon the nature and object for which they are to be ultimately used. When designed for hammering, or working like ordinary wrought iron, the heating will have to be extended through a space of 48 hours; but in the case of articles that have only to be tempered to be rendered fit for use, the heating will only have to be continued for 12 hours, or a little more or less. In the latter case, or when the articles have only to be tempered, it will not be necessary to thoroughly decarbonize the same, and, hence, the heating will occupy less time. Heretofore, in preparing castings, and decarbonizing the same to be annealed and tempered, it has been necessary to subject them to the action of heat in the presence of various oxides in closed vessels or cans, for the purpose of decarbonizing the same, or oxidizing the carbon contained therein. This has been always attended with much labor, and requires the use of expensive apparatus, which has often to be renewed, as it readily burns out and becomes useless.

Claim.—The process herein described of converting refined or cast iron and highly carbonized steel into malleable metal, by heating the same in an open or common fire, substantially as herein described.

Steel for Cannon.—The *Revue d'Artillerie*, published by order of the Minister of War, in France, contains the report of Major Bobillier, of the artillery, on the experiments made last year, at Creusot, in steel for the construction of cannon. The object of M. Schneider was, of course, to produce a metal that should be free from the faults both of cast iron and bronze, and according to the report this object has been obtained, for in the words of a communication made by General Morin to the Paris Academy of Sciences on the last day of August: "On the one hand accidents like those which caused the Russian government to reject a whole materiel of artillery from the famous establishment of Essen are not to be feared with the soft steel tried at Creusot; and, on the other, the three pieces of 78 m. 6 m. (310 inches) experimented on, supported without reaching the limit of their power of resistance, and without being deformed nearly as much as bronze would have been under the same circumstances, the most severe trials, and to which guns of that calibre are never submitted in ordinary service." The experiments are still being pursued, but General Morin told the academy that it might be safely asserted that the establishment at Creusot possessed the necessary elements for the production of cannons in steel with all the qualities demanded for artillery, namely, resistance against fracture and deformation.

Iron.

CLEVELAND.

CLEVELAND ROLLING MILL CO.,
MANUFACTURERS OF
BESSEMER STEEL RAILS,
Steel Plates and Forgings, Railroad Iron, Merchant Bar, Beams, Girders, Splices, Bolts, Spikes, &c., &c.
Office, Nos. 99 and 01 Water St., CLEVELAND, O.
A. B. STONE, Pres. H. CHISHOLM, V. P. & Gen. Supt.
E. S. PAGE, Sec'y.

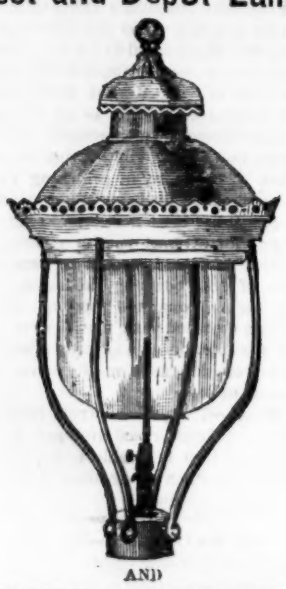
Cleveland, Brown & Co.
IMPORTERS, MANUFACTURERS AND DEALERS IN
IRON AND STEEL,
HORSE SHOES, HORSE NAILS,
NORWAY NAIL RODS,
NAILS, SPIKES,
"Standard Taper" Axles & Swedes Iron.
WINDOW GLASS,
Wrought Iron Pipe and Boiler Tubes.
Chains, Rivets, Nuts, Washers, and Heavy Hardware Generally.
25, 27, 29 & 31 Merwin Street,
CLEVELAND, OHIO.

OLD DOMINION
Iron and Nail Works Company,
RICHMOND, VA.,
. E. BLANKENSHIP, Commercial Agent.
Manufacture
NAILS AND BAR IRON,
Bands, Scrolls, Horse Shoe Bars Nut and Rivet Iron, Spike Rods, Shafting, Bridge Bolts, Ovals, Half Ovals, Half Rounds, &c.

NEW HAVEN
Rolling Mill Comp'y
Manufacturers of Merchant, Horse Shoe, and extra quality Iron Guaranteed to stand specified tests. Special orders taken for common Iron.
New Haven, CONN.

Jos. Scheider & Co
Manufacturers of
Japanned & Stamped
TIN WARE,

MINER'S PATENT
Street and Depot Lamps



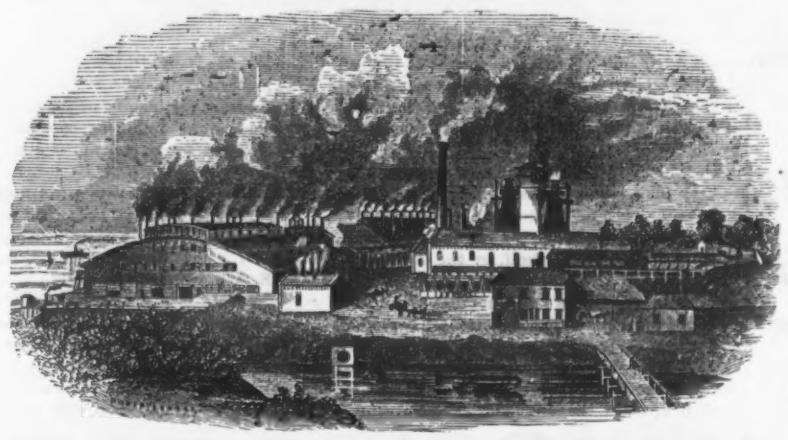
AND
PATENT SELF-RIGHTING
CUSPADORES.
THE PATENT SELF-RIGHTING
CUSPADORE

Is superseding all others. Being made of METAL it will not break, and as the lower part is CAST-IRON, will not corrode as quickly as other articles composed of sheet-metal for the same purpose, and if upset, it rights itself immediately.

68 Beekman St., N. Y
P. O Box 4291 New York.
FACTORY, PORTLAND, CONN.

Iron.

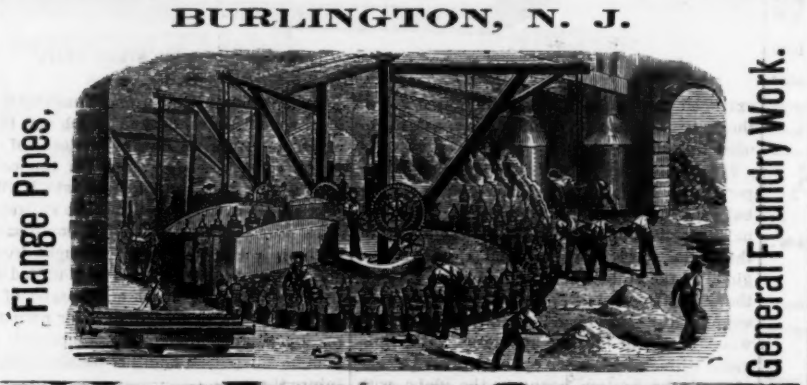
MILWAUKEE IRON CO.,
MANUFACTURERS OF



RAILROAD IRON
of Unsurpassed Excellence.
Capacity of Works, 45,000 Tons of Rails per Annum.
E. B. WARD, Prest. ALEX. MITCHELL, Treas. J. J. HAGERMAN, Secy. & t.
WILLIAM F. DURFEE, General Superintendent.
MILWAUKEE, WIS.

P. J. POTTER. JOHN W. HOFFMAN. WILLIAM TOOTHE. SOUTHARD HOFFMAN.
Potter, Hoffman & Co.,
110 Liberty St., N. Y.
GENERAL RAILROAD SUPPLIES.
AGENTS FOR
Bay State Iron Co., Boston Mass. Homogeneous Plates, Rails, &c.
Crucible Steel Tires, Axles, Forgings, &c.
Chrome Tool Steel and Spring Steel.
Nichols, Pickering & Co.'s Springs.
Saxkear & Co.'s Patent Steel Tired Wheels.

JOHN McNEAL & SONS,
BURLINGTON, N. J.



Flange Pipes, General Foundry Work.
CAST IRON PIPES
FOR WATER AND GAS.

Keystone Portable Forge Co.,
120 Exchange Place, Philadelphia.
Manufacturers of the
KEYSTONE PATENT
FORGES,
(FAN BLAST.)
23 Standard Styles, Large and Small, for Hand or Power, for
EVERY CLASS OF WORK.
H. S. MANNING & CO., Agents.
111 Liberty Street, New York.

Manufacturer of
Rules, Planes, Iron Planes, Grooving Plows, Gauges, Plumbs and Levels, Hand Screws, Bench Screws, Handles, Door Stops, Try Squares, Sliding T Bevels, Turning Saw Frames and Saws, Schell's Patent Gauge, Butler's Patent Gauge, Boring Machines, &c., &c.
Illustrated Catalogues of 1874 furnished on application. Address,
H. CHAPIN'S SON, Pine Meadow, Conn.

Having great facilities for doing cheap work as well as costly, using Waymoth's variety turning lathe, which in many kinds of work will lessen the cost at least one-half, we are prepared to furnish patentees and dealers with finished work in quantity.

Iron.

CAST IRON FLANGE PIPES
Of any length or diameter, for Steam Engines, Exhaust Steam, Fire Purposes, Refineries, both Faced and Drilled and Plain. Also,
GAS and WATER PIPES
Of all sizes, with necessary connections for same.
LAMP POSTS, FIRE HYDRANTS, VALVES, &c.

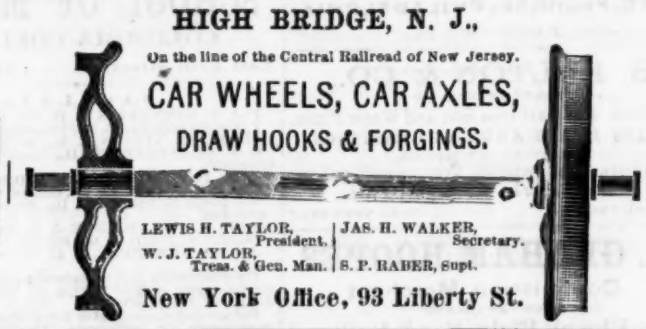
R. A. BRICK & CO., Mfrs., 112 Leonard St., N. Y.

NEW HAVEN ROLLING MILL CO.,
Manufacturers of
HORSE AND MULE SHOES.
NEW HAVEN, CONN.

JESSE W. STARR. BENJ A. STARR BENJ. F. ARCHER.
CAMDEN IRON WORKS
(Established 1824), CAMDEN, N. J.

JESSE W. STARR & SONS,
Engineers, Contractors and Manufacturers of Gas Apparatus.
And all the
Buildings, Tanks, Holders, &c., required for the Manufacture, Purification, and Storage of Gas, and Street Mains Requisite for its Distribution.
Plans, Drawings, and Specifications promptly furnished.
IRON FOUNDERS.
CAST IRON STREET MAINS, for Water and Gas, from One and a Half Inches to FORTY-EIGHT Inches in Diameter.
Stop Valves (all sizes), FIRE HYDRANTS, HEATING PIPES, BRANCHES, BENDS, TEES CASTINGS of any form or size required.
PHILADELPHIA OFFICE, - - 403 WALNUT STREET.

TAYLOR IRON WORKS,
HIGH BRIDGE, N. J.,
On the line of the Central Railroad of New Jersey.
CAR WHEELS, CAR AXLES,
DRAW HOOKS & FORGINGS.

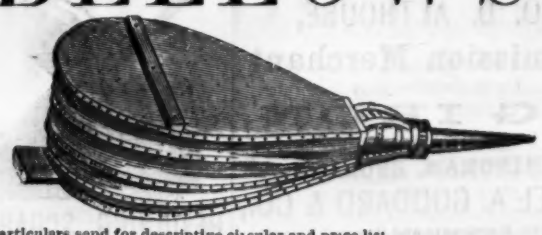


STEEL TIRED WHEELS, made under Sax & Kear's Patent by which process a crucible steel tire is perfectly welded to a cast iron center.
STANDARD DRAW HOOKS, finished, ready for immediate use, with nuts and plates, with or without links.
LEWIS H. TAYLOR, President. JAS. H. WALKER, Secretary.
W. J. TAYLOR, Treas. & Gen. Man. S. P. BABER, Supt.
New York Office, 93 Liberty St.

ATKINS BROTHERS,
PROPRIETORS OF THE
Pottsville Rolling Mills & Pioneer Furnaces
POTTSVILLE, PENNSYLVANIA.
Having introduced New and Improved Machinery into their Rolling Mills, and manufacturing all their Iron from the ore, and also doing all Machine Work and Repairs in their own shops, they are enabled to produce
RAILROAD IRON
Of uniform quality, unsurpassed for strength and wear, and of any required length.
Address the Proprietors Pottsville, Pa.

The Britannia Ironworks Company, Limited,
Middlesbro' England,
MANUFACTURERS OF
ALL DESCRIPTIONS OF IRON RAILS
Surplus Stocks of Various Sections always on hand.
London Office: W. G. FOSSICK, 6 Laurence Pountney Hill, E. C.
Weekly Output, One Thousand Tons.

NEWCOMB BROS.,
Manufacturers of
Smiths', Moulders' and Hand
BELLOWS.



For further particulars send for descriptive circular and price list.
586 Water St., near Montgomery N. Y
Canal Street East Broadway and South Street Cars cross Montgomery St.

The Strength of Boilers.

The British Board of Trade have been frequently asked to publish all the details of the rules on which their advisers act in recommending the amount of pressure for steam boilers. They have, therefore, in the following circular, put the whole together for the information of engineers and boiler-makers.

When boilers are made of the best material, with all the rivet holes drilled in place and all the seams fitted with double butt straps of at least five-eighths the thickness of the plates they cover, and all the seams at least double-riveted with rivets having an allowance of not more than 50 per cent. over the single shear, and provided that the boilers have been open to inspection during the period of construction, then 6 may be used as the factor of safety. But the boilers must be tested by hydraulic pressure to twice the working pressure in the presence and to the satisfaction of the Boards of Surveyors. But when the above conditions are not complied with, the additions in the following scales must be added to the factor 6, according to the circumstances of each case.

A	·15	To be added when all the holes are fair and good in the longitudinal seams, but drilled out of place after bending.
B	·3	To be added when all the holes are fair and good in the longitudinal seams, but drilled out of place before bending.
C	·3	To be added when all the holes are fair and good in the longitudinal seams, but punched after bending instead of drilled.
D	·5	To be added when all the holes are fair and good in the longitudinal seams, but punched before bending.
E*	·75	To be added when all the holes are not fair and good in the longitudinal seams.
F	·1	To be added if the holes are all fair and good in the circumferential seams, but drilled out of place after bending.
G	·15	To be added if the holes are fair and good in the circumferential seams, but drilled before bending.
H	·15	To be added if the holes are fair and good in the circumferential seams, but punched after bending.
I	·2	To be added if the holes are fair and good in the circumferential seams, but punched before bending.
J*	·2	To be added if the holes are not fair and good in the circumferential seams.
K	·2	To be added if double butt straps are not fitted to the longitudinal seams and the said seams are lap and double riveted.
L	·1	To be added if double butt straps are not fitted to the longitudinal seams and the said seams are lap and treble riveted.
M	·3	To be added if only single butt straps are fitted to the longitudinal seams and the said seams are double riveted.
N	·15	To be added if only single butt straps are fitted to the longitudinal seams and the said seams are treble riveted.
O	·1	To be added when any description of joint in the longitudinal seams is single riveted.
P	·1	To be added if the circumferential seams are fitted with single butt straps and are double riveted.
Q	·2	To be added if the circumferential seams are fitted with single butt straps and are single riveted.
R	·1	To be added if the circumferential seams are fitted with double butt straps and are single riveted.
S	·1	To be added if the circumferential seams are lap joints and are double riveted.
T	2	To be added if the circumferental seams are lap joints and are single riveted.
U	·25	To be added when the circumferential seams are lap and the streaks or plates are not entirely under or over.
V	·3	To be added when the circumferential seams are not fitted with double butt straps and double riveted. When the boiler is of such a length as to fire from both ends, or is of unusual length, such as flue boilers.
W*	·4	To be added if the seams are not properly crossed.
X*	·4	To be added when the iron is in any way doubtful, and the surveyor is not satisfied that it is of the best quality.
Y	1·65	To be added if the boiler is not open to inspection during the whole period of its construction.

Where marked * the allowances may be increased still further if the workmanship or material is very doubtful or very unsatisfactory.

The strength of the joints is found by the following method:

$$\frac{\text{(Pitch—diameter of rivets)} \times 100}{\text{Pitch}} = \text{Percentage of strength of plate at joint as compared with the solid plate.}$$

$$\frac{\text{(Area of rivets} \times \text{No. of rows of rivets) by 100}}{\text{Pitch} \times \text{thickness of plate}} = \text{Percentage of strength of rivets as compared with the solid plate.}\dagger$$

Then take iron as equal to twenty-three tons, and use the smallest of the two percentages as the strength of the joint, and adopt the factor of safety as found from the scale given in this circular:

$$\frac{(51520 \times \text{percentage of strength of joint}) \times \text{twice thickness of the plate in inches}}{\text{Inside diameter of the boiler in inches} \times \text{factor of safety}} = \text{Pressure to be allowed per square inch on the safety valves.}$$

Plates that are drilled in place must be taken apart and the burr taken off, and the holes slightly countersunk from the outsides. Butt straps must be cut from plates (and not from bars), and must be of as good a quality as the sheli plates, and for the longitudinal seams must be cut across the fibre. The rivet holes may be punched or drilled when the plates are punched or drilled out of place, but when drilled in place must be taken apart and the burr taken off, and slightly countersunk from the outside. When single butt straps are used, and the rivet holes in them punched, they must be one-eighth thicker than the plates they cover. The diameter of the rivets must not be less than the thickness of the plates of which the sheli is made, but it will be found when the plates are thin, or when lap joints or single butt straps are adopted, that the diameter of the rivets should be in excess of the thickness of the plates.—*Thomas Gray.*

† If the rivets are exposed to double shear, multiply the percentage as found by 1·5.

A New Form of Wagon Drop for Blast Furnaces.*

By Mr. T. Wrightson, Stockton on-Tees.

The success attending the author's application of the hydraulic brake to the lowering of charges into blast furnaces, has led to the application of the same principle to the lowering of wagons in the wagon drop.

In the ordinary form of wagon drop a framework usually of cast iron columns braced well together, supports an entablature, on the top of which is mounted a strong shaft with two large sheaves keyed thereon, to one or both of which is applied a powerful brake, worked by a lever from the upper rail level. The cage moves up and down in guides fixed to the framework, and is suspended by chains or wire ropes descending from one side of the sheaves.

From the opposite side of the sheaves hang heavy counter-weights, which are sufficiently in excess of the weight of the cage to draw it to the top when the wagon is not on. The brake is made so that it always presses upon the periphery of the brake wheels except when the lever handle is raised. The brake is thus applied at the time the wagon is run on, and in order to lower the wagon and cage the attendant raises the lever, and by allowing the wheels to slip in the brake, controls the descent. When the wagon runs off at the bottom level the cage is pulled up again by the action of the counter-weights.

The author proposes to use water as the controlling agent in the drop. The cylinder is of the same length of stroke as the fall of the cage, and may be about 10 in. or 12 in. in diameter. The cage is attached to the piston by means of a long piston rod working through a stuffing box at the bottom of the cylinder. At the top of the cylinder is a small supply tank, fitted with a self-acting ball-cock, to keep the same always supplied from the nearest water main. A small adjustable hole in the cover communicates with the inside of the cylinder to insure that it is always full of water, and another small hole in the piston allows any air which may accumulate under the piston to pass to the upper part of the cylinder, where it escapes into the tank by the hole before mentioned.

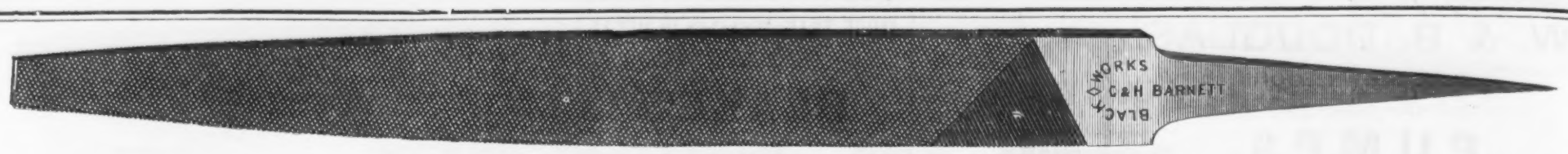
A pipe connects the top to the bottom of the cylinder, through an ordinary water cock, which is controlled by the weigh bar and lever. A catch lever is placed alongside the valve lever, and serves to lock the cage as it comes to the top of its stroke. This holds the cage while the wagon runs on. When the cage with the wagon on is required to descend, the catch rod is liberated, and then the valve handle lifted. By the opening of this valve, the water passes from the bottom to the top of the piston, thus controlling the descent of the cage with the greatest nicety to any speed the attendant may choose. When the cage is at the bottom, a self-acting stop is removed by the action of the cage touching the ground, which allows the wagon to run off at the lower level. The cage being then lighter than the counterweights, is drawn up again, the water in the cylinder during the ascent returning from the top to the bottom of the piston. When the cage arrives at the top of its stroke it locks itself, and is then ready for another wagon to be run on.

The bulk of the water passes and repasses through the cock, but on account of the area of the piston being less by the area of the piston rod on the lower side than the upper, the water at the top, displaced as the piston rises, cannot find room at the lower side of the piston, and will therefore find relief by a portion equivalent to the cubical contents of the piston rod passing through the small hole in the cylinder cover into the supply tank. In the same way when the piston again descends, there would be an equal deficiency in the water passing from the bottom to the top side of the piston: this is compensated by the same amount of water repassing through the hole in the cover. By this means the cylinder is always kept full of water, which is essential to the successful working of the apparatus. It will be observed that the same water is used over and over again, and that the ball valve in the tank is merely to supply any loss from evaporation or leakage. A small pipe encircling the cylinder is employed for the admission of steam in frosty weather to prevent the freezing of the water. This comes from the nearest steam pipe, and after coiling a few times round the lower part of the cylinder, passes up to the top tank alongside of the connecting pipe.

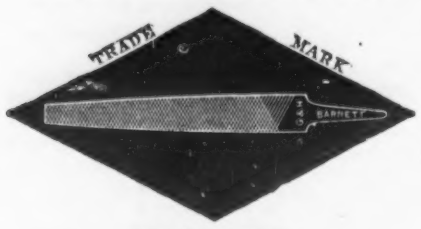
This form of hydraulic brake is on the same principle as an apparatus invented by the author a few years ago, for lowering charges into blast furnaces. The cylinder is in this case of very short stroke, and is attached to a beam, the opposite end of which supports the bell. In lowering the charge a catch-rod is liberated, and by opening a cock the water is allowed to pass from the top to the bottom of the piston, exactly as in the hydraulic wagon drop. The simplicity of this arrangement has led to its adoption in the case of 81 furnaces up to the present time.

The author patented the hydraulic drop at the same time as the bell and hopper arrangement, but the cost always seems an obstacle to its adoption, until Mr. Wilson, of Middlesborough, suggested, and under the superintendence of Mr. Howson, designed the arrangement with brick supports instead of cast iron; this reduced the cost so much as to put the hydraulic drop under very favorable conditions for comparison as to cost with the ordinary drop. Mr. Howson agreed with the author to erect one at the Lincolnshire Iron Smelting Company's works at Frodingham, where it is now in operation. (A model was shown representing the Frodingham drop, which has a stroke of 22 ft., the cylinder being only 6 in. in diameter. The cost of the drop was under £400, including all brickwork.

*Paper read before the Iron and Steel Institute at Barrow.



SEND FOR ILLUSTRATED



PRICE LIST.

BLACK DIAMOND FILE WORKS.

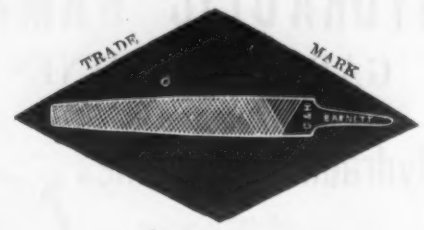
G. & H. BARNETT,

39, 41 & 43 Richmond Street, PHILADELPHIA.

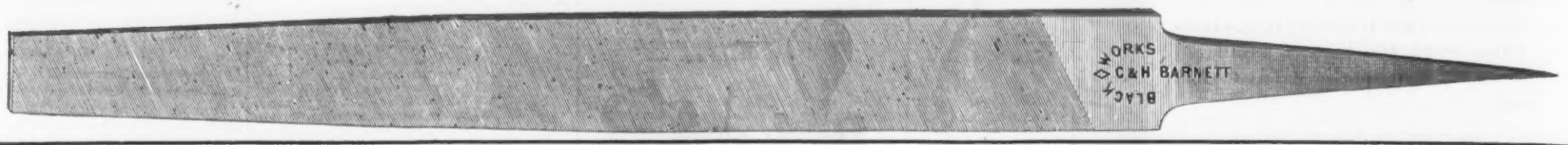
LINFORTH, KELLOGG & CO.,

Sole Agents for the Pacific Coast, 3 and 5 Front Street, San Francisco, Cal.

SEND FOR ILLUSTRATED



PRICE LIST.



THE NICHOLSON FILE.

All Nicholson Files are cut with the Patent *Increment Cut*, an invention owned and controled exclusively by us, the file cut in this manner being Patented as a new article of manufacture, and differs from all other machine cut files (all of which have their teeth cut with equal spaces) by being cut with teeth slightly *expanding or increasing in size and space from the point*, thus avoiding the too great regularity of teeth common to all other machine cut files. The tendency of all cutting tools with teeth or cutters placed at regular distances from each other may be illustrated (to the machinist at least) by the fluted reamer—as it is well known that if a round reamer be made with (say 12) teeth whose spaces are equidistant, the hole reamed will *not* be round and smooth, but will approximate to a hexagon in shape. Whereas, if the same number of teeth be made of irregular distances, the hole reamed will be both round and smooth. The same is true of a file, hence the necessity of its having teeth at unequal distances, and to which we have applied the name of Increment Cut File, which possesses all the advantages of hand cut work, and the accuracy and uniformityof machine work. It is now upwards of seven years since this File was introduced to the public, and the demand has increased until our production is undoubtedly treble that of any File manufactory in the country.

We put all files under seven inches in boxes of either one-half or one dozen each. These boxes are neatly arranged, and open on the end, on which the kind is plainly marked with printed labels, acknowledged improvements on the old methods.

The "*Increment File*" is not an experiment, but an established fact, and already has acquired a legitimate demand for upwards of 500 dozen per day. We employ no *regular Travelers*, but our goods may now be found in the hands of the principal jobbers and dealers throughout the country.

Prices and terms will be forwarded on application to

NICHOLSON FILE COMPANY,
Providence, R. I.

USE THE BEST.

Pawtucket, R. I.

The American File Company have the exclusive right to use the Bernot process for cutting files By this method all the advantages of hand cutting are secured, together with an accuracy unattainable in hand work. They are the only manufacturers who employ machinery for testing files and steel.

Goods of all known manufacturers have been repeatedly tested, and interesting tables have been compiled showing the working qualities of files made by different makers, and of files made from different steels, and with various shapes and angles of tooth. They have thus reduced the manufacture of files to an exactness and perfection with a uniformity of result, as they believe, never before attained. No file, foreign or domestic, that they have ever tested, has equalled the performances of their own goods taken at random from their stock. Their machines are capable of the most delicate adjustment, and can produce the very finest work known to the trade. Special files made to order. Prominent file manufacturers are having their best goods from our works.

Price lists and information furnished on application.

AMERICAN FILE CO., Pawtucket, R. I.

FILES AND RASPS.

XTRA QUALITY,

MADE FROM THE BEST

IMPORTED STEEL

BY THE

Auburn File Works,

AUBURN, N. Y.

JOHN ROTHERY'S

Celebrated Hand-Cut FILES,

Made of Best English Cast Steel.

WALSH, COULTER & FLAGLER, Sole Agents,

83 Chambers and 65 Reade Streets, N. Y.

W. F. SHATTUCK & CO.,

113 Chambers and 95 Reade Street, New York.

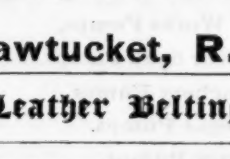
MANUFACTURERS OF AMERICAN HARDWARE.

Cees & Taft's Pat. Wrenches.
Axe, Pick, Sledge & Hammer Handles.
Hatchet, Auger, Chisel & File Handles.
Mallets, Pat. Boot Jacks.
Gimlets and Gimlet Bits.
Augers and Auger Bits.
Cocoa Nut Dippers.
Mouse Traps. Wire Selves.
Scale Beams.
Patent Tap Borers.
Tool Chests.
Climax Horse Collars.
Brunday Horse Nails.
Maguire's Wr't Iron Goods.
Shattuck's Platform Counter Scales.
Yaw's Cow Bells.
Axes, Picks and Hatchets.
Hammers, Crow bars.
Sad[illegible]
Bor[illegible]ines.
Cast [illegible]atchets.
Cof[illegible]
Stai[illegible]oons.
Stock [illegible]er.

Leather Belting.

PAGE BELTING COMPANY.

Sole Manufacturers of TRADE MARK.

Page's  Patent Tanned Belting.

GENERAL MILL SUPPLIES.
No. 24 Exchange Street, Boston.

BRADFORD & SHARP,

Manufacturers of

LeatherBelting

OAK TANNED,

57 Walnut Street, Cincinnati, O.

We furnish many of the largest Iron Mills in the West, and guarantee quality of all goods sold.

Send for prices.

Alexander Brothers,

Manufacturers of **OAK TANNED**

LeatherBelting

410 & 412 North 3d, Philadelphia, Pa.

Established 1816.

Peter A. Frasse & Co.,

95 Fulton Street, New York,

SOLE AGENTS FOR

Thomas Turner & Co.'s Suffolk Works,

SHEFFIELD.

FILES AND HORSE RASPS,

And Importers of

P. S. STUBS' FILES, TOOLS & STEEL,

W. J. Davies' Sons' London Emery Cloth,

HUBERT'S FRENCH EMERY PAPER.

EVERY FILE WARRANTED.

Equal to the

BEST.

Western Files. Western Files.

Works, Beaver Falls, Pa. Office, 96 Chambers St., N.Y.

Western Files. Western Files.

LARGEST CAPACITY

Of any File Works in the World.

In the face of strong prejudice against American files, this brand has earned a reputation second to none. The trade in all sections testify to their excellence. We confidently offer these files as superior in every respect and cheaper than any first-class file in the market. A trial will confirm their reputation.

PENNSYLVANIA FILE WORKS.

TRADE  MARK

McCAFFREY & BROTHER,

Manufacturers of FIRST QUALITY FILES and RASPS ONLY,

Nos. 1732 & 1734 North Fourth Street, Philadelphia, Pa.

GEORGE T. RICHARDSON. FRANK H. SCUDDER.

Middleboro' Shovel Co.,

MANUFACTURERS OF

SHOVELS, SCOOPS & SPADES.

Office and Salesroom,

63 OLIVER STREET,

Works, Middleboro, Mass. **BOSTON.**

BUSINESS ITEMS.

PENNSYLVANIA.

The Williamsburg Manufacturing Company recently disposed of 400 tons of pig iron to the First National Bank, of Hollidaysburg, $27 per ton being the price paid.

The Sheridan Furnace, at Lebanon, Wm. Kauffman & Co., proprietors, which was commenced no farther back than April last, is approaching completion. It will be 60 feet high and 16 feet across the bosh.

The New Castle *Guardian* says: Hope Furnace, at Rose Point, is receiving a new hearth, and other improvements are being made in buildings, &c. There is a heavy stock of ore and coal on hand. The furnace averaged during her last run nearly eight tons per day of charcoal iron. Although the furnace has never stopped on account of hard times, good wages and prompt pay have not returned since the panic. This is a warm blast charcoal furnace, 28 feet high and 8½ feet at boshes.

The Bethlehem Iron Company have determined to increase their indebtedness by placing a loan of $1,000,000.

The Rohrerstown Iron Works, Lancaster county, blew out a few days ago, and work will be suspended therein for some time, to enable the owners to take an account of stock and make necessary repairs and alterations.

The firm of Wm. B. Scaife & Sons, of Pittsburgh, have just completed the iron framing, with corrugated iron covering and siding, of the immense grain elevator in Philadelphia for the International Navigation Company. The building is 92x208 feet, and from the track floor to ridge of roof is about 130 feet high.

Blake & Fessenden's Western File Works, Beaver Falls, employ 200 hands, and are working full time. Capacity of the works, 1000 dozen files per day.

Reese, Graff & Woods' steel department, of Pittsburgh, is running over-time. The sales of steel by this firm during August were $6000 greater than ever before in any one month. Their iron department is still running double turn.

A strike is announced among the machinists and blacksmiths employed by the Lancaster Manufacturing Company, makers of rim bolts and railroad hardware, because wages were paid in scrip instead of cash. A suspension of operations by the company is deemed probable.

Since Messrs. Wilson, Leggate & Co. acquired possession of the Union Forge and Iron Mill some $25,000 worth of machinery has been added. A link machine, recently introduced, cuts a piece of iron from a bar and shapes it into a link, at one operation, and does it with perfect accuracy and great speed. They also have a machine that makes two pins at once, and with amazing speed—pounding, shaping and completing them in a few minutes from the bar of iron.

The New Castle *Guardian* says: Our rolling mills are running double turn, and the nail factories to their full capacity, and six out of seven furnaces in blast.

Jos. Graff & Co., Beaver Falls, manufacturers of axes and planters' hoes, employ 120 hands, and are working full turn, turning out 75 dozen axes per day, and 10,000 dozen planters' hoes per year.

Myers & Armour's Shovel Works, Beaver Falls, are running on full time, and are turning out 40 dozen shovels and spades per day. Business reported fair.

The Black Diamond Steel Works, of Pittsburgh, are busy, the large sheet mill working double time.

The Brier Hill Iron and Coal Company have blown in their No. 2 stack. The object in starting their furnace at this time is to work up a large stock of ore and other raw material on hand. This stack has a good record, and will, no doubt, continue to do good work.

MASSACHUSETTS.

The new scythe establishment, built by H. S. Mansfield, at Millville, is 350 feet in length by 30 feet in width, and is operated by a hundred horse-power Corliss engine. Connected with the factory is also a machine shop for manufacturing steam engine and water-wheel regulators, spindles, rings and other cotton machinery. The scythe factory turns out over 84,000 scythe blades a year, beside a variety of hay knives, and corn knives, over 144,000 of the latter being produced last year. The factory gives employment to about 75 persons.

The Stevens Pistol Company, of Chicopee Falls, is now adding new and valuable machinery to its already large equipment.

Eighteen cylinder boilers are being made at the boiler works in Fall River, for Job Leonard & Co., of Somerset, and are to be placed in the new iron works which are to be erected in the latter place.

The Haskins Machine Company, of Fitchburg, is doing a good business. Since the first of January the company have sold 65 steam engines.

CONNECTICUT.

The Branford Lock Works are being so enlarged that the building will soon be, altogether, 800 feet long. The company employ 180 hands.

The New Haven Car Company is finishing three palace cars for the European and North American Railway. They cost $11,000 or $12,000 each.

The Secor Sewing Machine Company, at Bridgeport, are turning out 50 machines per day, an increase of 30 machines over their regular complement.

The Howe Sewing Machine Company, of Bridgeport, turn out 200 machines per day, and will soon increase their working force.

OHIO.

The Enterprise Iron Works, of Cartwright, McCurdy & Co., Youngstown, are in full operation, with plenty of orders. This company manufacture hoop and band iron and steel mixed tire, and do a business of $650,000 a year.

The Franklin Machine Company, Columbus, have built an addition to their works which will be used as a foundry, and their working force, at present 133 hands, will be doubled.

The Cleveland Rolling Mill Company have begun excavating for their new wire mills, a little south of the old establishment, to be the same size as the old one.

INDIANA.

The manufacturing industries of Terra Hante have received an addition in the erection of works by the Wabash Iron Company, who intend to make a full line of merchant bar iron. This company has a capital of $100,000, and have just commenced operations. Their works cover an area of 220 by 160 feet, and are made of wood with sheet iron covering. Their machinery consists in part of nine puddling, three heating and one scrap furnace, a squeezer, a 20 inch muck, and 18 inch bar and an 8 inch guide mill, several pairs of shears, each driven by its own engine, and other necessary appliances.

The Ohio Falls Car Works, at Jeffersonville, have been building a number of freight cars for the Des Moines & Minnesota Railroad.

The Southwestern Car Works, at Jeffersonville, have been working on repairs for the Indianapolis, Bloomington & Western road.

The Indianapolis *Journal* says: The Indianapolis Brass and Supply Company has covered itself with glory by successfully casting the heaviest piece of brass ever cast in the State, and one which the foundries of Pittsburgh and Cincinnati tried in vain to mold. It weighs one thousand four hundred pounds, is circular in form and over seven feet in diameter, inside measurement.

RHODE ISLAND.

We note among the new manufacturing items that the mills of the Rocky Mountain Vermillion Paint Company are now located in Providence, adding still another branch of industry to the many for which that manufacturing city is celebrated. The Rocky Mountain Vermillion Paint is made from a pure oxide of iron, copper, black lead and mercury—mined in the far West, and is not, as many suppose, a product of any of the Eastern States. It is claimed to be entirely distinct from any other mineral paint now upon the market, and to possess the above minerals in perfect combination (which combination is not disturbed in preparation), and prepared with the utmost care, excluding all dirt, sand, clay and foreign matters that are in all or nearly all the mineral paints now in use. The company claim that it is the cheapest paint to the consumer. It is the experience of all who have used mineral paints that there is more or less sediment that is worthless, and, of course, a loss to the consumer. The Rocky Mountain Vermillion Paint is said to contain none of this sediment, hence there can be none of the waste so often and justly complained of in connection with mineral paints; but "the bottom of the pot is as good as the top," to use the expression of one who has largely used it. In mixing it 25 per cent. less oil is required, and in spreading it, it will cover from 25 to 30 per cent. more surface, making it cheaper to the consumer than anything ever before used. In addition to the regular way heretofore of the company, the paint may now be had dry in whole or half barrels, ground in oil from 25 lbs. packages up, and in cans prepared for immediate use from one gallon up. The company also will soon commence the manufacture of colors, of which the Rocky Mountain Vermillion Paint will be the basis, and which, it is claimed, will excel all prepared paints in durability and cheapness. We are pleased to learn also that the trade has so far extended, that in addition to the main office, at Providence, a branch office has been opened in New York, at No. 338 Broadway, where orders may be left and will receive prompt attention. It is the intention of the company to place this valuable paint in the hands of all parties who need a cheap, strong, durable, universal paint.

WEST VIRGINIA.

The hinge factory, at Wheeling, is at work, filling an order for 45,000 butt hinges, lately received from Louisville, Ky. A new improvement has been introduced at this factory—polishing the hinges on emery wheels, thus giving them a highly finished appearance.

They are putting in new muck rolls at the La Belle Mill, Wheeling.

At the Benwood Nail Factory, 111 nail machines are running, turning out small nails mostly. The spike machine is also at work.

The rolling mill at Moundsville has, it is said, taken a contract for Dewy, Vance & Co., of Wheeling, which will keep it running steady all winter.

Thin Iron.—The *Ironton Journal* says: A small sheet of iron, three inches wide by five inches long, was laid upon our table on Monday, which weighs exactly nineteen grains. It comes from the Iron and Steel Company, and is said to be the thinnest iron ever made. Some time ago the Wheeling papers boasted that a mill or mills of that place had rolled iron so thin that a piece three by five weighed only forty grains. The experiment was tested in the Iron and Steel Company's mills the other day by the superintendent, Mr. Thomas Johns, with the above result. If the Wheeling or any other mills in this country can beat this we should like to hear from them. Mr. Johns thinks another experiment will show even better results.

At Park, Brother & Co's Black Diamond Steel Works, Pittsburgh, a few days ago, was successfully rolled the largest plate of steel ever rolled in that city, or perhaps in the country. The plate was homogeneous steel, and was of the following dimensions: Length, 180 inches; width, 53 inches; thickness, ¾ of an inch; weight, 2700 pounds.

GEORGE GUEUTAL & SON,

39 West 4th St., New York.

IMPORTER OF

Wood Screws, Steel in Sheets,

BAND SAWS, TOOLS FOR BRAZING, &c.

Bed Screws, Pin Hinges, and Wire Nails a Specialty.

H. W. PEACE,

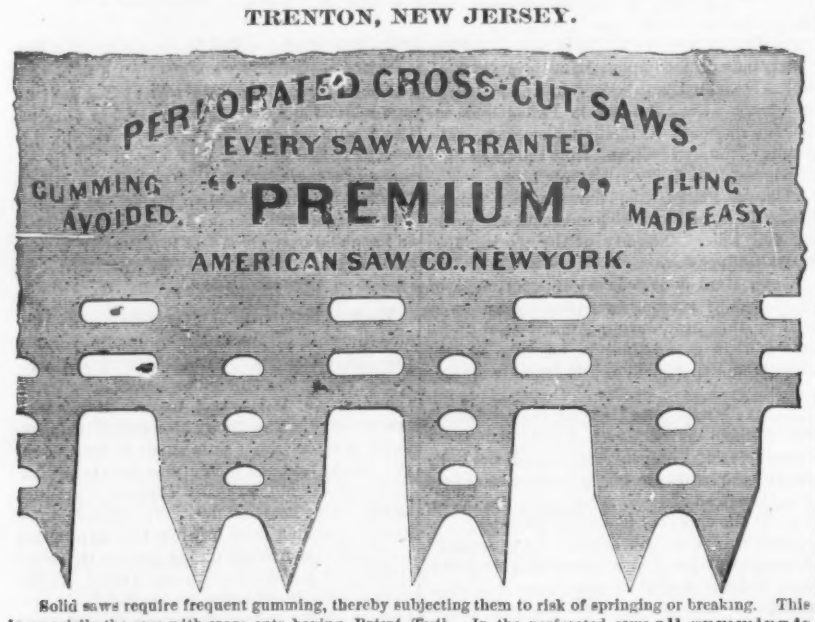
MANUFACTURER OF

SAWS OF ALL KINDS.

FACTORY, WILLIAMSBURGH, N. Y.

AMERICAN SAW CO.,

TRENTON, NEW JERSEY.

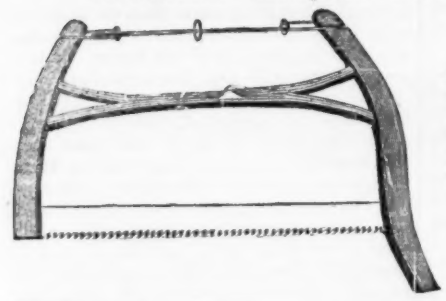


Solid saws require frequent gumming, thereby subjecting them to risk of springing or breaking. This is especially the case with cross cuts having *Patent Teeth*. In the perforated saws **all gumming is avoided** and the teeth are easily kept long and in *proper shape*, saving *files*, *labor*, *expense* and *vexation* As is well known, our saws cut faster, smoother and easier than any other.

MOVABLE-TOOTHED CIRCULAR SAWS AND SOLID SAWS OF ALL KINDS.

Hankins' Elliptic Forked Saw Frame.

Patented June 28th, 1870.



The annexed engraving represents HANKINS' ELLIPTIC FORKED SAW FRAME, which commends itself to the trade for its simplicity of construction. The Forked Brace being all in one piece, without any center bolt, secures for the Frame great strength and durability. These Frames are put up with my best Webs, marked "No. 40, Harvey W. Peace."

HARVEY W. PEACE,

VULCAN SAW WORKS,

WILLIAMSBURGH, N. Y

THE SILVER STEEL
DIAMOND CROSS-CUT SAW.

$1.50 Per Foot.

PATENT HANDLES AND GAUGE INCLUDED.

Patent Secured

THIS new Saw, which is destined to take the place of all Cross-cut Saws in point of **SPEED AND EASE**, is manufactured by **E. C. ATKINS & CO., Indianapolis, Ind.**, who are the

SOLE MANUFACTURERS FOR THE UNITED STATES.

So confident are we that this is the best Cross-cut Saw in the market that we CHALLENGE THE WORLD. Orders promptly filled.

E. C. ATKINS. H. KNIPPENBERG.

E. C. ATKINS & CO.

Saw Manufacturers and Repairers, Indianapolis, Ind.

J. FLINT & CO.

Manufacturers of all kinds of **SAWS** and PLASTERING TROWELS.

ROCHESTER, N. Y.

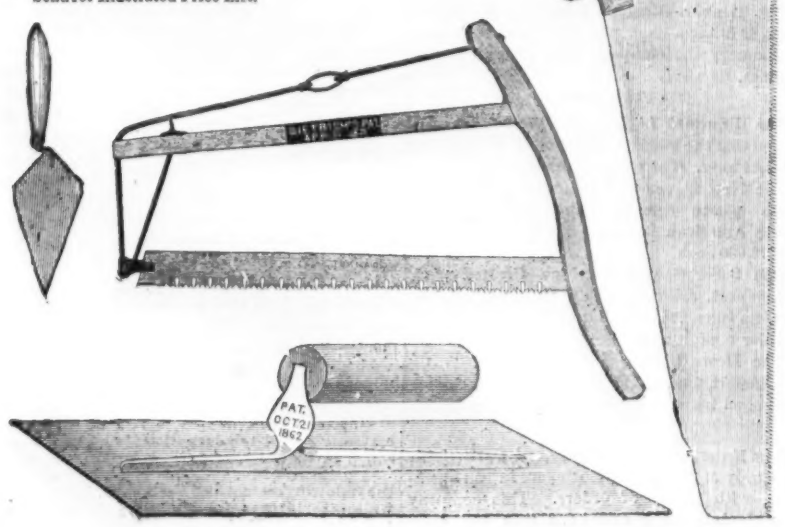
Dietrich's Patent Wood Saw. Guaranteed the strongest, lightest, easiest to strain or tighten and best braced wood saw made; also to give perfect satisfaction.

Dietrich's Patent Double Handle Rip Saw. All will readily see the benefit of this useful invention.

J. Flint's Patent Plastering Trowels. The best made and finished Trowels in the world. We make four grades of Plastering Trowels, from the best to the cheapest.

Our patent method of grinding hand saws makes them superior to any in the market.

Send for Illustrated Price List.



E. M. Boynton,

80 Beekman Street,

NEW YORK,

Manufacturer of

Saws of all kinds.

Also Sole Manufacturer of

LIGHTNING SAWS.

Two Direct Cutting Edges, instead of one Scraping point.

Note extra steel and durability over the old **V**, outlined on **M** tooth.

I am willing and extremely anxious, on proper notice, to accept a Challenge from H. Disston & Sons, or any responsible Saw Manufacturer, and am ready to back my words with appropriate deeds and $500 expense, if beaten.

N. B.---With Hand, Billet or Cross Cut Saw, $500 on each.

E. M. BOYNTON.

I make a specialty of the LARGEST SIZES of **Circular Saws**, and call particular attention of lumber manufacturers to the following points of excellence:

Evenness of Temper.—The peculiar structure of my furnace subjects all parts of the saw to a DEAD heat, and when dipped in the oil bath secures perfect uniformity.

Perfect Accuracy in Thickness.—My saws are ground on a patent machine, automatic in its operation, grinding off the thick places upon the plate before the thinner parts are reached, and when the saw is removed BALANCES PERFECTLY, which is proof positive of the right accomplishment of the work.

Properly Hammered.—Great care is taken that no saw shall leave my works without due attention in this important particular. A saw too tightly strained upon the rim, or too loose in the center, cannot be successfully run—hence the importance of so hammering the saw as to effect equal strain in all its parts, and at the same time RUN TRUE. This department is under the personal supervision of myself, who has devoted over *twenty years* to the art of saw making.

I am sole proprietor and manufacturer of the celebrated **"Challenge" Cross-Cut Saw.** Price Lists of all kinds of saws sent on application.

JAMES OHLEN.

THE Wethersfield Novelty Co.,

Manufacturers of

Builders' Hardware

AND

PLATED GOODS,

Wethersfield, Ct.

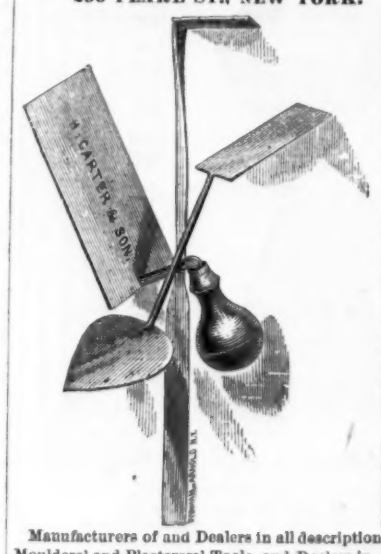
Brass and Iron Founding. Light Castings for outside parties a specialty.

Gold, Silver, Nickel and Bronze Plating. Orders solicited.

Communication from Hartford by Horse or Steam Cars.

H. CARTER,

290 PEARL ST., NEW YORK.



Manufacturers of and Dealers in all descriptions of Moulders' and Plasterers' Tools, and Dealers in General Hardware, Gilded Copper Weather Vanes, CARTERS' PATENT CARRIAGE LIFTING JACK, &c

Moulders' and Plasterers' Tools.

Cutlery.

THE MILLER BROTHERS CUTLERY CO.,

Manufacturers of

PATENT FINE PEN & POCKET CUTLERY

WEST MERIDEN, CONN.

The **only Knives made** that are put together in such a manner that there is no strain on the covering or frail part of the knife. We warrant our knives equal in cutting qualities and workmanship to any made, and are acknowledged by English makers as the **Best American Knife.** We also make

NICKEL & SILVER PLATED POCKET KNIVES

which will not rust or become discolored when used as a Fruit Knife, and their cutting qualities are equal to any other knife. Orders filled from the factory or by

J. CLARK WILSON & CO., 81 Beekman Street, N. Y.

WHEELER, MADDEN & CLEMSON,

Manufacturers of Warranted Cast Steel

SAWS

of every description,

including

Circular, Shingle, Cross Cut, Mill, Hand, Roberts' and other Wood Saws,

&c., &c

Cast Steel Files

of the well known brand of

Wheeler, Madden & Clemson.

FACTORIES:

Middletown, Orange Co., N. Y.

BRANCH OFFICE:

97 Chambers Street, New York.

BRUNDAGE FORGED HORSE NAILS,

Manufactured from

BEST NORWAY IRON,

by BRUNDAGE & CO. Sold by

WHEELER, MADDEN & CLEMSON

Middletown, Orange Co., N. Y.

PYROMETERS
for BLAST FURNACES.

E. BROWN'S STANDARD PORTABLE,

E. Brown's Improved Gauntlet

Edw. BROWN,

311 Walnut St., Philadelphia.

ALSO FOR SALE

PYROMETERS

For Baker's Ovens, Boiler Flues, Galvanizing Baths, Oil Stills, Vulcanizers, Superheated Steam.

E. Brown's Portable Blast Gauge for the plug hole, Steam Gauges, Blast Gauges, Mercury Gauges, Recording Steam Gauges, Engine Counters, Indicators for ascertaining the Horse Power.

Over 300 "Gauntlett" and 100 Portable Pyrometers are now in use at Blast Furnaces.

Circulars on application.

Licensed by United Nickel Company.

NEW YORK

Nickel Plating Co.

Works, 133 & 135 W. 25th Street,

Office, No. 18 Park Place,

ISAAC ADAMS, JR., Prest **NEW YORK.**

AMERICAN PEN AND POCKET KNIVES,

MANUFACTURED BY Aaron Burkinshaw. AB *PEPPERELL,* MASSACHUSETTS.

My Blades are forged from the best Cast Steel, and warranted. To me was awarded the GOLD MEDAL of the Connecticut State Agricultural Society; also a Silver Medal and Diploma from the Mass Mechanics' Ass'n Sept., 1860

VAN WART, SON & CO.

Hardware Commission Merchants,

BIRMINGHAM, - ENGLAND,

Agents,

VAN WART & McCOY,

48 Chambers Street, New York

George H. Gray & Danforth,

48 India Street, Boston.

F. W. TILTON,

17 Old Levee Street, New Orleans.

At each of these places a complete assortment of samples of Hardware and Fancy Goods will be found, including all new descriptions. Sole Agents for

John Rimmer & Son's Celebrated Harness and other Needles.

OSCAR IRVING VAN WART & Co.,

FORWARDING AGENTS,

2 South John Street, LIVERPOOL.

SCHOLEFIELD, GOODMAN & SON.

(Formerly JOSHUA SCHOLEFIELD & SONS.)

GENERAL

Hardware Merchants,

BIRMINGHAM, - ENGLAND.

Agents and Sample Rooms.

New York—Edward Frith, 16 Cliff Street.

Boston—H. L. Richards, 18 Batterymarch, Street.

New Orleans—R. Rhodes, 71 Camp Street.

Montreal—J. J. Evans 14 St., John Street.

ESTABLISHED 1832.

NEW YORK KNIFE CO.

MANUFACTURERS OF SUPERIOR

Table & Pocket Cutlery,

WARRANTED TO BE MADE OF THE BEST MATERIAL.

WALKILL RIVER WORKS,

Walden, Orange Co., New York.

THOS. J. BRADLEY, President.

Wood's Hot Water-Proof Table Cutlery.

Handsomest, Cheapest, most Durable Cutlery in use.

Wood's Celebrated Shoe Knives. Butcher Knives a specialty.

WOODS CUTLERY CO., Antrim, N. H.

No. 99 CHAMBERS STREET, N. Y.

Notice of Removal.

ASLINE WARD,

From 54 Beekman St. to No. 101 and 103 Duane St., N. Y

REPRESENTING

GEO. WOSTENHOLM & SON

CUTLERY AND RAZORS,

WASHINGTON WORKS, SHEFFIELD.

CORPORATE MARK.

I·X·L

FRED'K WARD & CO., SHEFFIELD,

CUTLERY & TABLE KNIVES.

CORPORATE MARK.

B4*ANY

The Rival Puddlers.

The *Iron and Coal Trades Review* says of the workings of the Danks' machinery in North Staffordshire:

The South Staffordshire Mill and Forge Managers' Association paid a visit recently to the Ravensdale Iron Works, of Messrs. Robert Heath & Sons, to witness the working of the Danks rotary puddling machine, and they were conducted by Mr. John Lester, one of the three commissioners who inspected the machinery in the United States, and who is the secretary of the association. The visitors were received at the works by Mr. Chas. Fryer, the manager. At Ravensdale, the Danks plant consists of two of Mr. Ireland's cupolas, each capable of turning out 100 tons in twelve hours, but not at present used, six revolving furnaces erected, with four more in course of erection, a squeezer, a steam hammer and powerful rolls. All the machinery has been designed to bear great strain, the engines supply abundant power, and the squeezers are actuated by a separate steam engine having a 24 in. cylinder. The rolls are of the single hole balance groove class. Five furnaces were working on Friday; four with North Staffordshire pig iron produced by Messrs. Heath at their own blast furnaces, and one with castings, the sixth being off for the replacing of bricks which had come down from above the fire-place flue. The puddled iron is now being used chiefly to produce boiler plates.

Mr. Fryer explained that the furnaces were working at a disadvantage, by reason of a want of sufficiently good fettling. Undue time had to be given to the fettling operation, because common tap cinder had to be largely used; and this was insufficiently refractory. This, however, was a temporary difficulty, which Mr. Fryer hoped soon to be able to overcome.

The association attentively watched the working of the furnaces, satisfying themselves that the puddling was thoroughly done. The front of the movable flue is nicely adjusted, and it is held firmly by a simple screw, which answers the purpose much better than a rack wheel as first applied. The engines which actuated the furnaces are small and compact, being of 12 in. cylinder; they worked very easily, were sensitive to the slightest touch of the operator, and were capable of being run from a very slow revolution to from nine to ten revolutions per minute.

The furnace was ready for emptying in about an hour and a half. The ball, which was of an oval shape, was then lifted on to the fork, and carried to the squeezers, by the aid of what is known as the American telegraph. A pair of wheels, united by an axle, revolved upon rails suspended over head, at an incline. A hook, which depended from the center of the axle, supported the fork and its burden. In this way, and with marked rapidity, the ball reached the squeezers, and was tumbled in at the back. In 30 seconds it had been well squeezed horizontally and rammed end ways, and was upset ready for the steam hammer, to which it was taken on the bogie; and in two minutes had been beaten down to a slab suitable for bars 15 in. by 1¼ in. As the slab got into the rolls it was evident that the latter were doing their work remarkably well. It was noticed that both screws were worked with a wheel, and not with separate handles. The rolling took about 3 minutes. Thus, 5½ minutes only were occupied between the time when the ball left the furnace and that at which it came out of the rolls a puddled bar 16 feet long by 15 inches wide and 1⅝ inches thick. It is customary, at the Ravensdale Works to cut these into lengths for piling, and, according as it is required to make them ordinary, or best, or double best, or treble best plates—plates being the class of manufactured iron to the production of which the Danks furnace is applied in North Staffordshire—the pile is built up entirely of Danks bars or in specified proportions of Danks bars and ball-furnace bars. When the latter are used, Danks bars are invariably employed for tops and bottoms; and as the size or the plates necessitate, so one pile, or two, or indeed three piles, were respectively employed in the plate mill. Each pile was rolled down in the usual way into a slab, then placed one upon the other in the furnaces and finished under the rolls. With the use of these slabs boiler plates of 33 cwt. were turned out with dimensions 12 ft. 3½ in. long by 13 ft. 11 in. broad, and 1 1-16 in. thick. If the finish of these plates was not equal to that of South Staffordshire boiler plates, and if, because of the pig iron employed, the quality was hardly so good, Mr. Fryer is nevertheless satisfied that the plates which the use of the Danks furnace enables him to turn out, are superior to all others produced in North Staffordshire. He is prepared, he says, to back his plates for tensile strain against the plates of certain marked houses in South Staffordshire, and he claims that whilst they bear the hot test well, they have at the same time been proved equal, on an average of four, to a strain of 20¾ tons one way and 24¼ tons the other way. This strain more than complies with the government test. By the use of the Danks furnace he explained to his visitors he could make plates of much greater excellence than by the hand method. He does not profess that the system, even in his hands, is quite complete; but he expresses his determination to do his best to make it so. All its difficulties have not yet, he remarked, been overcome, but those of the past had been so surmounted as to assure him of ultimate perfect success.

Nor were the mill and forge managers of South Staffordshire indisposed to believe all this. Of one thing they were quite convinced—that the mechanical puddling which they saw at the Ravensdale Iron Works, was mechanically a success. There appeared to the forge managers to be difficulties in the way of adapting the 10 cwt. Danks furnace to the making of the smaller sizes for which South Staffordshire is so well known, but to this, the mill managers and the millwrights replied by intimating that if the forge managers would do their part in producing the required quality of ball, they, in their turn, would overcome all the mechanical obstacles in the way of either splitting the ball or the slab, or cutting up a long bar, or rolling billets.

It may be added, that though Mr. Fryer has not yet made up a profit and loss balance sheet, yet he is convinced that, even in its present stage, Danks' process, as used at the Ravensdale Iron Works, is not a source of loss; and that he is equally certain that the mechanical difficulties in respect of the application of the principle to small sizes is in no degree insuperable.

We take the following from the *Iron Trade Circular*:

The subject of mechanical puddling has of late engaged the attention of the leading iron masters in nearly every district in the kingdom, and in addition to this the various systems which have been proposed have been discussed at several meetings of the Iron and Steel Institute, and the one which the Institute selected as the most likely to answer the purpose, was that know as the Danks' process. It will be in the recollection of our readers that a deputation from the ranks of our iron masters proceeded to the United States for the purpose of thoroughly testing the merits of Mr. Danks' Rotary Puddler. The result was the introduction of the system into some of the iron works in the Cleveland district. But, strange to say, notwithstanding the severe trials which were made in the United States, when the system was fully tried in this country it was pronounced a failure, and the very company who had spent large sums of money in the erection of furnaces declared no dividends in consequence of the loss they had sustained by the adoption of the Danks' system of puddling. We had thought that Mr. Danks' process was about to collapse, but during the past week it has received a stimulus at the iron works of Mr. Robert Heath, at Ravensdale. A deputation of South Staffordshire mill managers were invited to witness and examine the Danks' process, but although the newspapers have given a long account of this visit, we do not find any detailed account of the results obtained which is after all of the utmost importance to any one who is desirous of being satisfied as to which of the rival processes is the best. We last week gave a full account of the Baynton process, the diagrams and particulars of which were furnished us by the obliging secretary of the American Iron and Steel Association; but as there is no table of results appended, we trust the Baynton Furnace Company will favor us with a report of trials which have been made at any of the iron works in that country. During the week, Mr. Crampton has had an opportunity of explaining his process to the members of the Iron and Steel Institute, whose meeting has been held at Barrow-in Furness; and in our report of the proceedings of that important gathering, will be found, in a condensed form, Mr. Crampton's paper, which was read on Thursday, and illustrated by large diagrams. His process is in operation at Woolwich, and, so far, appears to give satisfaction. Mr. Crampton is sanguine enough to say he will make plates and rails under a ton of coal for the finished material, and to make first rate steel from Middlesbrough pigs for tools and rails. Here, again, a tooth-full of facts is worth a ton of assertions; and if Mr. Crampton will send us well-authenticated results, we will give them the benefit of our circulation. Another system, and the one we think that is to rival the lot, has been explained to us during the week by the inventor, M. Dormoy, whose system of puddling has been in use at the Tudhoe Iron Works, at Spennymoor, and also at the Earl of Dudley's Works, at Round Oak. With reference to the Dormoy process, Mr. Alfred Greener, of Darlington, writing to the *Newcastle Chronicle* in answer to some remarks which had been made about the failure of the Danks' process says: "The remarks that appeared in your issue of the 7th inst. in reference to the reported failure of the Danks' process of rotary puddling may be calculated to lead to the erroneous impression that, because Danks' system has so far proved a commercial failure, we shall be compelled again to resort to hand puddling. It is well that this impression should be got rid of; and all who are familiar with the iron trade must be aware that there is no good reason why hand puddling should still be persisted in. At the Round Oak Iron Works, Dudley, and at the Tudhoe Iron Works, Spennymoor, puddling furnaces have been worked for a considerable time past by mechanical means, on what is known as Dormoy's principle. By this method, hand labor is almost entirely obviated; and the results obtained up to the present time, and over a period sufficiently lengthy to prove that they can be permanently and regularly depended on, are of the most satisfactory character. Nearly 3000 tons of iron have been produced with the Dormoy furnaces at Tudhoe, with a consumption of not more than 12 cwts. of coal per ton of iron made, whereas the average consumption of coal per ton of iron made in the ordinary puddling furnace is not less than 25 cwts. But this is not all. The Dormoy puddling furnace gives a decidedly better production of iron than the ordinary puddling furnace, and the quality of the iron is considerably improved. With such results as these, it is absurd to talk of returning to the old and expensive system of hand puddling as the Roane Iron Company have done in America. Mechanical puddling, in one form or another, must become the system of the future."

The following table will show the result of a series of experiments which have been carried out at one of the large iron works in the Cleveland district, and which will interest our readers inasmuch as this is just the kind of information wanted to fully explain the system, and is so different to what is to be found in more newspaper reports:

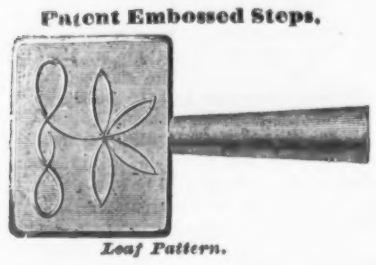
A REPORT OF THE RESULTS OF THE DORMOY PUDDLING PROCESS AS IN USE IN THE CLEVELAND DISTRICT.

Number of Furnaces.	Date.	Number of Heats.	Charge. Pig and Plate. T.	Cwt.	Charge. Scrap. T.	Cwt.	Qrs.	Produce. Puddled Iron. T.	Cwt.	Qrs.	Lbs.	Produce. Scrap. T.	Cwt.	Qrs.	Yield. T.	Cwt.	Qrs.	Lbs.	Coals used. T.	Cwt.	Qrs.	Coals used per ton of Iron made. T.	Cwt.	Qrs.
	Week ending July 4.																							
52	7 shifts	37	22	4	..	13	..	20	6	3	..	..	9	..	1	1	3	11	14	10	..	13	3	24
53	10 shifts	63	37	16	1	10	1	37	17	3	..	1	..	2	1	1	2	20	19	12	..	10	3	19
	Week ending July 11.																							
52	5 shifts	21	12	12	..	9	..	11	2	.	..	..	6	..	1	2	2	24	8	19	2	15	2	28
53	5 shifts	24	14	8	..	12	..	15	6	..	..	..	8	..	1	1	2	18	6	12	..	9	2	16
	Week ending July 18.																							
52	7 shifts	32	19	4	..	9	..	17	2	1	15	..	6	..	1	2	1	23	14	..	..	16	..	9
53	7 shifts	32	19	4	..	12	..	17	11	3	15	..	8	..	1	1	3	11	12	11	..	13	3	23
	Week ending July 25.																							
52	5 shifts	30	17	10	..	14	2	15	18	2	15	..	9	2	1	1	3	28	10	2	..	12	1	7
53	8 shifts	49	29	8	..	16	2	28	2	2	..	..	12	2	1	..	3	19	15	13		10	3	16
	Week ending August 1.																							
52	8 shifts	38	22	16	1	14	..	20	14	2	15	1	3	..	1	1	..	5	12	13	..	11	2	7
53	8 shifts	33	19	4	..	19		18	11	..	5		13	..	1	..	2	24	12	4	..	12	2	24
	Week ending August 8.																							
52	10 shifts	56	33	12	1	12	..	30	10	3	..	1	1	2	1	2	..	1	23	..	..	14	2	6
53	10 shifts	50	30	....	1	..	2	28	7	..	15	..	13	2	1	1	..	19	20	10	..	14	..	10
	Week ending August 15.																							
52	10 shifts	49	29	8	..	2	2	27	9	1	15	..	1	2	1	1	1	19	17	..	..	12	1	11
53	8 shifts	40	20	4	..	11	2	18	12	2	15	..	7	2	1	1	2	3	13	..	..	13	2	22
	Week ending August 22.																							
52	8 shifts	35	21	....	..	..	..	19	16	2	..	..	..	..	1	1	..	22	10	10	..	10	2	11
53	8 shifts	35	17	12	..	10	2	15	15	1	15	..	6	2	1	2	1	10	9	10	..	11	3	6

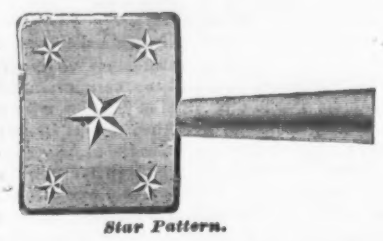
Report of Inspections Made by the Hartford Steam Boiler Inspection and Insurance Company for July, 1874.—The number of inspection visits made during the month was 1587, and the number of boilers examined, 3189, of which 1294 received thorough internal and entire inspection. The hydraulic pressure was applied in 187 cases, which were mainly new boilers. The number of defects discovered by these examinations were 1856, of which 450 were regarded as dangerous. Among the defects, numbering large, were fractures, 133—69 being regarded as dangerous. This defect is usually found in connection with boilers which are poorly cared for. They are run at high pressure, cold water is used for feed, and the supply is not uniform. Where a feed water heater is not used, a simple and effective apparatus may be used, which was described in our last annual report. Blistered plates, 368—54 dangerous. This defect comes from want of homogeneity in the iron, which is a very difficult thing to detect in a new plate. There are, however, different ways of doing this. One is to divide the entire plate into squares or checkers by drawing chalk or crayon lines from side to side at right angles to each other. Then with a hammer tap lightly on each square, noting the difference in sound. If there is a clear, ringing sound the spot may be regarded as sound and homogeneous. If, however, there is a dull thud, it indicates that the sheet is laminated at that spot, and if put into use a blister may be expected at any time. Another method of detecting laminated sheets is to subject them to heat, when, if imperfect, blisters will appear. Great care should be used in this last method, or the sheets may be entirely ruined. Cases of deposit of sediment, 267—60 dangerous. Incrustation and scale, 337—36 dangerous. Pressure gauges out of order, 180—38 dangerous. These varied from —10 to +30. Boilers condemned as unsafe, 38. Some of these latter were repaired, and at a subsequent examination found to be safe to run.

H. D. SMITH & CO., PLANTSVILLE, CONN.

Patent Embossed Steps.



Leaf Pattern.

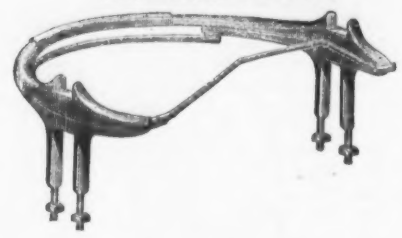


Star Pattern.

King Bolt Yokes.

Established 1850.

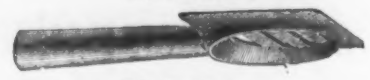
No. 6 Fifth Wheels.



1871 Pattern Shaft Couplings.

Patent Cross Bar Steps.

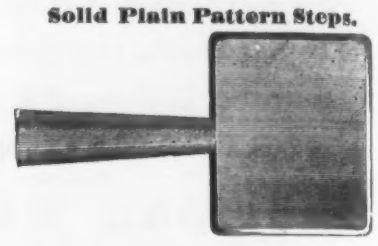
Upper View.



Lower View.

Smith's Improved Philadelphia Pattern Slat Irons.

Solid Plain Pattern Steps.



MANUFACTURERS OF A LARGE VARIETY OF FIRST-CLASS

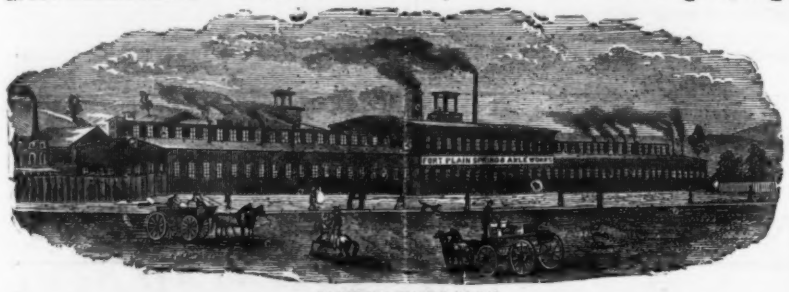
FORGED CARRIAGE IRONS.

Send for Price List.

FORT PLAIN SPRING & AXLE WORKS,

CLARK, SMITH & CO.,

Green Jacket Axles. FORT PLAIN, N. Y. Fine Carriage Springs.



MANUFACTURERS OF

English and Swedes Steel Springs, and Iron and Steel Axles.

Execute orders promptly for

Black, Bright, Tempered and Oil Tempered Springs,

Of any Pattern or Style. Also for **AXLES of any description, from a COMMON LOOSE COLLAR to the FINEST OF STEEL.**

Our facilities for manufacturing are very extensive, and with our recent additions of new and improved machinery, we defy competition.

Send for Price List and Descriptive Circular.

CARRIAGE BOLTS.

Buy the Best.

Clark's Patent Carriage Bolt.

Best Bolt manufactured for all kinds of agricultural machinery. Will not split the wood, and can not turn in its place.

MANUFACTURED BY

CLARK BROS. & CO., Milldale, Conn.

Also Manufacturers of

Plow and Machine Bolts, Coach Screws, Nuts, Washers, Tire Blanks, Rivets, &c

Send for New Illustrated Price List, just completed.

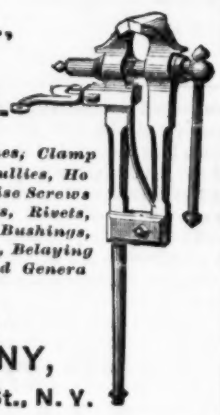
WILSON MANUFACTURING COMPANY.,

NEW LONDON, CONN.

MANUFACTURERS OF

SOLID BOX VISES.

With or without Convex and Concave Washers.



Jackscrews, Braces, Coffee Mills, Turning Lathes, Clamp Heads and Screws; Parallel Bench Vises, Sash Pullies, Ho House Pullies, Composition Cocks, Bench Screws, Vise Screws Gridirons, Drill Stocks and Bows, Box Chisels, Rivets, Sheaves, Block Pins, Composition Roller and Iron Bushings, Riggers' Screws, Caulkers' Tools, Pump Chambers, Belaying Pins, Marlin Spikes, Malleable Iron Castings, and Genera Hardware.

GALVANIZING DONE TC ORDER.

WILSON MFG. COMPANY,

Warehouse, 37 Chambers St., N. Y.

WM. H. HASKELL & CO.,

Pawtucket, R. I.

Manufacturers of

COACH SCREWS (with Gimlet Point),

all kinds of

Machine and Plow Bolts,

FORGED SET SCREWS AND TAP BOLTS.

Warerooms. No 11 Warren St., New York H. B. NEWHALL, Agent.

CONCORD SPRING WORKS,

J. PALMER & CO.,

Manufacturers of

CARRIAGE SPRINGS,

Superior Temper, Warranted.

CONCORD, N. H.

Philadelphia Star Bolt Works.

"STAR"

Carriage and Tire Bolts,

NORWAY IRON,

Button Head.

QUALITY GUARANTEED.

Trade Mark.

IXL

Carriage and Tire Bolts,

CHARCOAL IRON,

Beveled Head.

QUALITY UNSURPASSED.

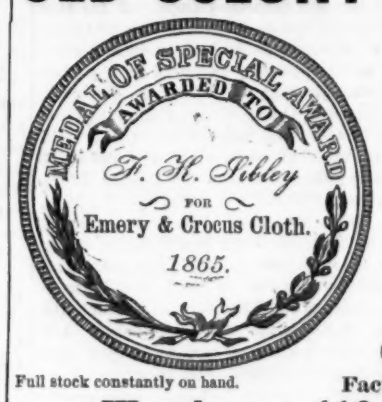
The Celebrated "STAR" Brand of Axle Clips.

Blank Bolts, Wood Screws, Square Head Bolts, Plow Bolts, &c., &c.

Our IXL Bolt is made from approved brands of Iron, and is equal in every point of appearance to the regular Philadelphia Carriage Bolts, being made on the same machinery, and the quality is not surpassed by any bolt of like grade in the market.

TOWNSEND WILSON & HUBBARD 2301 Cherry St. Philadelphia Pa.

OLD COLONY RIVET WORKS.



Agents for

F. K. SIBLEY & CO.'S

Prize Medal

Emery & Crocus Cloth,

RIVETS, BOLTS,

Nuts, Washers, Lag Screws.

Drilling Machines, Tire Benders

AND

CARRIAGE HARDWARE.

Full stock constantly on hand.

Factories at Kingston, Mass.

Warehouse, 116 Chambers St., N. Y.

ESTABLISHED 1837.

H. M. WENTWORTH & CO.

MANUFACTURERS OF

Carriage Springs & Axles

PAM, No 3 WATER ST, **Gardiner, Me.**

ALL GOODS WARRANTED.

ARMS, BELL & CO.,

Manufacturers of

Carriage, Tire & Square Head Bolts.

Cold Pressed Nuts and Washers, Etc.,

YOUNGSTOWN, OHIO.

Price lists sent on application.

THE READING BOLT & NUT WORKS.

J. H. STERNBERGH,

READING PA.,

Manufacturer of all kinds

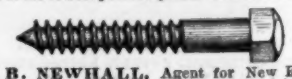
Machine Bolts, Bolt Ends,

RODS for Bridges & Buildings,

HOT PRESSED NUTS,

Washers, Coach Screws, Refined Iron, &c.

Manufacturing my own stock of iron, I am able to control quality, and all orders promptly, with a very superior article, at the lowest possible price. Send for Price List.



H. B. NEWHALL, Agent for New England States, New Jersey and Eastern New York, 11 Warren Street, New York.

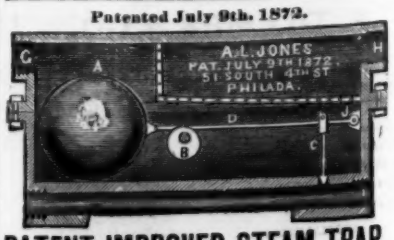
J. AUSTIN & CO.,

168 Fulton Street, N. Y.

SOLE AGENTS FOR

SCRIPTURE'S OILERS.

Patented July 9th, 1872.



PATENT IMPROVED STEAM TRAP.

The only self-regulating Steam Trap in the world. For full description send for circular to

A. L. JONES,

Steam Heating Establishment, 51 S. 4th Street Phila.

The Iron Age.

New York, Thursday, October 1, 1874.

DAVID WILLIAMS . . . Publisher and Proprietor.
JAMES C. BAYLES . . . . Editor.
JOHN S. KING . . . . Business Manager.

The Iron Age is published every Thursday morning, at No. 10 Warren Street, New York, on the following terms:

SUBSCRIPTION.

Weekly Edition.....$4 a year.

Issued every THURSDAY Morning. Contains full Trade Reports for the week, brought up to the close of business on the previous day.

Semi-Monthly Edition..... ...$2 a year.

Issued the FIRST AND THIRD THURSDAY of every month. Contains a full Review of the Trade for the previous half month.

Monthly Edition.....$1 a year.

Issued the FIRST THURADAY of every month. Contains a full Review of the Trade for the previous month.

To	Weekly.	Semi-Monthly.	Monthly.
Canada	$4 40	$2 40	$1 24
Great Britain	6 00	3 00	1 50
France	6 00	3 00	1 50
Germany	8 00	4 00	2 00
Prussia	8 00	4 00	2 00
Buenos Ayres	8 00	4 00	2 00
Peru	6 00	3 00	1 50
Belgium	8 00	4 00	2 00
Mexico	7 00	3 50	1 75
Sweden	12 00	6 00	3 00
New Zealand	8 00	4 00	2 00
Brazil	6 60	3 30	1 65

ADVERTISING.

One square (12 lines, one inch), one insertion, $2 50; one month, $7·50; three months, $15·00; six months $25·00; one year, $40·00; payable in advance.

All communications should be addressed to

DAVID WILLIAMS, Publisher,
10 Warren St., New York.

EUROPEAN AGENCY.

CHARLES CHURCHILL & Co., American Merchants, 98 Wilson Street, Finsbury, London, England, will receive subscriptions (all postage prepaid by us) at the following prices in sterling: Great Britain and France, 25/; Germany, Prussia and Belgium, 33/4; Sweden, 50/. They will also accept orders for advertisements, for which they will give prices on application.

City Subscribers will confer a favor upon the Publisher, by reporting at this office any delinquency on the part of carriers in delivering *The Iron Age*: also, the loss of any papers for which the carriers are responsible. Our carriers are instructed to deliver papers only to persons authorized to receive them, and not to throw them in hall ways or upon stairs; and it is our desire and intention to enforce this rule in every instance.

CONTENTS.

Fire Risks in Chicago.

The refusal of companies representing fully nine-tenths of the capital invested in fire insurance, to write any more policies on Chicago risks, will probably have a good effect upon the local authorities, and do more to save the city from another devastating conflagration than any amount of good advice would have done. The demands of the underwriters were, in the light of past experience, entirely reasonable. They asked: 1. That the Fire Department be completely reorganized and stripped of political connections. 2. That the fire limits be extended to include the whole city, and no frame buildings be allowed to stand within them. 3. That the city have a force of sappers and miners. 4. That the water supply be at once increased. 5. That mansard roofs, except when made fire-proof, be prohibited. 6. That lumber yards be gradually removed to more remote localities. 7. That the city put floating engines on river and lake. These were nothing more than necessary precautions against another sweeping conflagration. In refusing to comply with the conditions prescribed, the city authorities did wrong, and the withdrawal of the insurance companies from Chicago business is a merited rebuke. We have no doubt they will meet the demand of the insurance companies sooner or later, for public opinion will compel them to do so; but in the mean time their unwillingness to accept risks will compel the people to adopt precautions hitherto neglected. This they are doing already. Every large establishment is being supplied with fire apparatus, and employes are organized for fire service. When every house owner is responsible for the safety of his building and must bear the loss in case of its destruction by fire, such precautions will be adopted as will reduce the risk of conflagration 90 per cent.

We have no doubt a great many people in Chicago consider the fact that they are thus thrown upon their own resources a great misfortune. We think differently. We regard fire insurance as a system productive of vastly more evil than good. The great objection to be urged against it is that it effects an inequitable and unjust distribution of losses resulting from conflagration, by transferring the burden of such losses from the careless and improvident to those who by care, prudence and forethought protect their property from the risk of destruction by fire. Were all companies conducted with the judgment displayed in the management of some of the better class of these institutions, there would, certainly, be less reason for adverse criticism than now exists. But many companies, perhaps the majority, have been conducted upon a very loose system, which made it cheaper for a capitalist to insure an unsafe building against fire than to protect that building at his own expense, or build it fire-proof in the first instance. Fire-proof buildings are costly, and do not rent for enough more than buildings not fire-proof to pay interest on their greater cost, all other conditions being equal. To a capitalist about to build a warehouse or dwelling, the question of how he shall build presents itself much in this way: "If I build a fire-proof "structure it will cost me so much; if "I build without reference to fire-proof "qualities it will cost me so much less. "In either case I can get only about so "much rent for it. Now, if I build cheaply, "and without any regard to fire, I can cover "the risk of loss by insurance, which will "cost me so much per year, or less than the "interest on the greater cost of a fire-proof "building. It is, therefore, an economy "for me to build my house without any "regard to its ability to withstand fire, "either outside or in." He will, therefore, build cheaply, neglecting all precautions against the danger of fire which he is not required by law to observe, and it is of houses thus built that our cities are largely composed. When finished, the builder may occupy it himself, or lease it to a tenant. In either case the occupant considers the case thus: "I have in this "building furniture or merchandise worth "so much. To protect this against fire is "impossible, for the building is not fire-"proof, and may take fire from any one of "an hundred causes. I can partially pro-"tect my goods by providing the means of "extinguishing a fire, should one break "out, and by employing some one to "watch the place by night, all of which "would cost me so much. For less than "this I can insure my goods, and can then "afford to be indifferent whether they "burn or not." As the result of this illogical reasoning whole blocks of warehouses, filled from cellar to roof with inflammable merchandise, are locked up night after night with no protection whatever, and no means of extinguishing a fire should one break out. Conflagrations originating under such conditions in the business portions of cities, are of frequent occurrence; sometimes, fortunately discovered in time to prevent serious losses, but often remaining undiscovered until the whole inside of the building bursts into flame, and all the efforts of the firemen must be directed to the saving of adjoining property. This carelessness is the very natural result of a system which offers to relieve the house owner or tenant from the consequence of his own negligence. Nor is the mischief thus done in any way attoned for by the payments made upon policies which become claims. Insurance creates nothing to replace that which fire destroys. Every house burned and every dollar's worth of merchandise destroyed, represents so much of the economized products of useful labor lost forever, and which can only be replaced by labor which might be better employed in adding to the wealth previously accumulated. On the other hand, were the owners of property compelled to assume all risks themselves, or were the conditions of insurance that all reasonable and necessary precautions be observed that would diminish the risk of destruction or damage by fire, the amount of property thus destroyed or damaged would be very much less than it is now. We should soon learn by experience how to build so that the risk of conflagration should be reduced to a minimum, and the insurance companies would be the means of averting fires instead of, as now, inviting them by encouraging carelessness.

In assuming the position they have taken with regard to Chicago risks, the insurance companies have given the first indication of a desire to lessen the evils which have hitherto been regarded by thinking men as the necessary result of their usual method of conducting business. That it is within their power to reform the fire insurance system with great advantage to themselves and the community, has already been demonstrated by experience. The Hartford Steam Boiler Inspection and Insurance Company is engaged in the business of insuring the owners of boilers against damage to property resulting from boiler explosions. According to the classifications of the fire insurance companies, every risk which this company assumes may be considered extra hazardous, for the reason that the condition under which boilers explode are not yet fully known or understood. It is sometimes the case that the causes of such accidents cannot be discovered, and it is, therefore, impossible to provide against them. But the Hartford Company, while assuming all such risks, demands of the insured that no known and remediable causes of danger shall be permitted to exist. When an application is made for insurance, the boiler to be insured is carefully examined and tested. If old and rotten, or of defective construction, the risk is declined, leaving the owner to choose whether he will take the chances of explosion or get a new and safe boiler. If defective, but capable of being made sound and safe, such repairs as may be necessary are indicated, and when they are made according to direction the insurance is effected, on condition that such further repairs or improvements as may be ordered by the company's inspectors shall be made promptly and thoroughly. The results of this system are not merely that the company is able to meet all the claims upon it, but that it is able to reduce the danger of explosion to a minimum—its losses upon an immense business averaging only a very small percentage of the amount of risks carried. Thus the boiler owner is not only insured against dangers beyond his control, but he is enabled to guard against those resulting from preventable causes; and instead of merely getting indemnity for losses attendant upon the explosion of his boiler, he is able, in nearly every instance, to prevent explosions. From such a system only benefit can result, since the individual is permitted to shift the responsibility for the safety of his boiler upon the company only when he has done all he can to make it safe and strong, and observed every precaution necessary to insure its prudent and careful management. There is no reason why fire insurance companies should not adopt this system, requiring all persons seeking insurance upon real and personal property to adopt certain precautions necessary to its protection against fire. Were this done in every instance, much of the valuable property annually destroyed would be saved; but so long as the system extends its benefits to the careless and negligent, as well as to the prudent and careful, so long will more of evil than of good result from it.

The "City of Tokio" for Liverpool.

The City of Peking, the largest iron steamship ever built except the Great Eastern, is on the way to San Francisco *via* the Straits of Magellan. She drew 25 feet of water at Sandy Hook bar, and carried the largest amount of dead weight that ever left this port in a steamship. The vessel and cargo together weighed nine thousand tons. The beauty and comfort of her appointments were heartily acknowledged by all the distinguished guests who went on the excursion trial trips to Newport and Boston. About her speed there can be no question. Commander R. W. Meade, U. S. N., in a published card, said she made under steam alone, 18 knots in 1 hour 3½ minutes, and there is no record of any other ocean steamship having done so well. The superior quality of the iron of which she is constructed insures her the greatest possible strength, and she is expected to reach San Fancisco in the perfect condition in which she left New York, within 50 days.

The City of Tokio, whose hull and engines were built from the same patterns, is in all respects a companion ship. She is just as strong, equally well furnished, and will prove quite as swift. Steam will be applied to her engines about next Saturday, and she will be ready for sea during October. The Alaska, the last wooden Pacific mail steamer, went to her destination *via* the Suez Canal. She is a side-wheeler, and the foreign connoisseurs criticised her as a splendid folly. There seems every reason why the City of Tokio should go to the Pacific by way of Suez, and none why she should not. She would in that instance not only redeem the American name for wisdom in steamship building, which the Alaska did much to condemn, but would carry our reputation higher than ever, and would undoubtedly command our recognition as the first steamship builders of the world. It would cost no more to send her to the Pacific *via* Suez than *via* Magellan, for she could easily secure a full cargo and passenger list for Liverpool, where the heaviest steamship owners of the world would have the opportunity of admiring her in contrast with their own best ships, and where she would be a popular nautical sensation. Were she to find any difficulty in obtaining in Liverpool a full cargo for Asia, she would certainly find none in Southampton, the home port of the great Peninsular and Oriental Steamship Company. There seems to be as much profit in sending the "City of Tokio" to the "far East" by Suez as by Magellan, and there is certainly much more glory. This subject appears to be specially worthy of consideration by Mr. Rufus Hatch and Mr. John Roach, who respectively represent the American ocean carrying trade and iron steamship building.

"Compensating Heating."

The amount of ingenuity displayed in devising schemes to absorb some part of the enormous capital constantly seeking profitable investment in the London money market, shows that the traditional "Yankee" does not monopolize this peculiar talent. Among the many schemes now advertised in the English papers we find the following:

Cowan Compensating Heating, Limited.—Capital £60,000 in £5 shares. The price to be paid for the patents of the Dromore Patent Heating Company is £9000 in cash, and £3000 in shares. The prospectus states: "Mr. John Cowan's system of heating all kinds of buildings by hot water and a small lime-kiln has been proved to be most invaluable by all who have adopted it, and its advantages are as follows: 1. In most cases it saves the entire cost of fuel, and in many cases produces a profit. 2. It maintains the heat more steadily than any other system. 3. It requires no night attendance. 4. It produces no smoke or unpleasant smell."

We really do not see why a company which will own so valuable a patent as this need organize upon the limited liability basis. We do not know just how strong the prejudice of the typical Englishman is for an open fire of "sea coals," but in this country the "Compensating Heating Company" would have no difficulty in disposing of their apparatus at good prices. Those of us who have hitherto labored under the unpleasant necessity of laying in winter supplies of coal at prices ranging from $7 to $12 per ton, and whose annual consumption has made our fires cost us from $100 to $500, would be very glad to heat our dwellings and places of business with "hot water and a small lime kiln," especially as we should thus save the entire cost of fuel, and perhaps have a profit at the end of the year. Our stove manufacturers would then be compelled to sell us dividend paying ranges, furnaces bearing interest at 7 per cent. per annum, and coupon cook stoves, or they would be driven from the market. For our own part we do not know of a pleasanter way of making money in cold weather than keeping warm, and we should be very glad to make this light and agreeable occupation a collateral branch of our present business.

Either the Canadians are very short sighted people, or the clamor they are making against reciprocity with the United States is all for effect. At a meeting of the Montreal Board of Trade, a few days ago, a good many gentlemen who are either very much deceived or very anxious to deceive the people of this country, tried very hard to make it appear that if the proposed treaty were ratified we should get the oyster and they the shells. We are willing to credit them with honesty in their professions, but to do so it is necessary to assume that they are very stupid. Whatever they may think about it, reciprocity is nothing more nor less than a scheme, devised in the interest of the Dominion of Canada, to promote the manufacturing interests of that country at the expense of the United States. We should gain no material advantage from the abolition of the duties now imposed upon our manufactures sent into Canada, for the same advantage would be extended to England, our only formidable competitor in that market. With the same privilege extended to Canadian manufacturers, Canada would be the best place in the world in which to manufacture for the American market, and both native and foreign capital would seek investment in those industries which, on this side of the line, are most dependent upon protection. It is idle to say that we should be benefited by reciprocity at the expense of Canada. Such is not the fact, whatever the opinion of Canadian manufacturers on the subject.

Charge of the Heavy Brigade.

Ironsides! to the feed!—*Cromwell.*

[Banquet to the Iron and Steel Institute at Barrow, 2d Sept., 1874—six hundred guests].

Strangers from far and wide,
Some o'er Atlantic's tide,
All down to Barrow
Came the Six Hundred.
"Dine!" was Sir James' cry,
Theirs not to reason why,
"Thanks" was their sole reply;
Down to the banquet
Sat the Six Hundred.

Tables to the right of them,
Tables to the left of them,
Tables in front of them,
Garnished and cumbered.
Ad. lib. of food and wine,
Nothing to do but dine,
Into the meat and fish,
Laid upon plate and dish,
Went the Six Hundred.

Clink'd all their glasses there,
Clink'd as they met in air,
Feasting on dainty fare,
"Speeching" and "toasting" while
All the world wondered.
Plunged in the steam and smoke,
Gladly their fast they broke,
Keen was each appetite,
Till they were sated quite,
Then they rode back, and a
Proper Six Hundred.

Tables to right of them,
Tables to left of them,
Tables behind them,
Disordered and plundered.
Flattered by snob and swell,
They who had dined so well
Rode back by special train,
Back to their homes again—
Who would in Barrow dwell!—
Not a man left of them—
Left of Six Hundred.

Honor the Iron Trade:
Oh! the good meal they made
On the provisions laid
For them at Barrow.
Long shall the tale be told,
Yea, when Sir James is old,
Of this manœuvre bold
For the Broad Arrow!

TENNYSON & Co., Limited.
—*Ulverston Mirror.—England.*

The Coal Question.

The great coal question is certain to become again unpleasantly prominent before winter sets in, and therefore any information bearing on the world's supplies is to be welcomed. The chief fact standing out prominently, amid the tedious and constantly recurring squabbles between capital and labor in our English coal districts, is that the high price of fuel for the last three years has more and more thrown other nations on their own resources, and rendered them comparatively independent of our fields. India, for instance, is gradually raising enough coal from the Nerbudda and other regions to supply its railway companies and lines of steamers, a fact lately brought into prominence by a published abstract of the reports of the leading railways. In the Indian Ocean and China attempts are also made with some success to utilize the vast deposits existing there. Of Europe we need not speak, unless to point out that coal mines in operation are not now confined to France, Belgium and Germany; Russia, too, is developing them at a rate which promises soon to make her independent of English help. But America presents the most instructive example of all. A New York journal states that recent reports made to the United States Land Office give the estimated coal area at 513,000 square miles, of which exactly one-half are beyond the Mississippi. Of the latter little is worked, owing to the cost of developing the deposits, but as population increases and machinery comes into use, the beds will doubtless be opened out for local use. The bearing which such a fact has upon our economical arrangements is intimate. Thanks for the high prices current here for the last two years, we are fast losing America as a market for our iron, and the native manufacturers are cutting us out, not only in the States, but in Canada even. Now, what is essential to the prosperity of the American ironmasters is abundant fuel; give them that, and they can set English competition at defiance, unless our prices are very much lowered. We, however, have maintained high prices just long enough to give the requisite stimulus, and when we reduce them—of which there is yet little sign—it may be too late to recover the lost ground. The situation may be commended to the notice of the disputants in South Wales, Durham, Lanarkshire and elsewhere; if they lose much more time they will have made up their minds just when the opportunity is gone, and there is nothing left to fight about. Without foreign markets, Merthyr and Gartsherrie have scarcely any *raison d'etre.—London Daily Telegraph.*

Large Yield of Pig Iron.—It would seem that there is hardly any limit to the improvement in the production of Isabella Furnace, No. 1. Our last report, for the four weeks ending August 8th, gave a total production of 2311 tons 2090 pounds, or an average of 578 tons per week. Against the above large yield, we have the following record of the product for the week ending September 19th:

	Tons.	Pounds.
Week ending August 29	699	1,570
" " September 5	699	780
" " September 12	622	1,560
" " September 19	611	50
Total	2,432	1,720

Average per week, 613 tons and 430 pounds. The furnace is 18 feet bosh and 75 feet high.—*Pittsburgh Commercial.*

Notes on a New Magnetic Iron Region on Lake Champlain.

The Lake Champlain mining district of New York State, has been the source of the supply of magnetic ores to most of the furnaces east of the Alleghany mountains, as well as of fettling ores, almost exclusively, to the rolling mills of the Atlantic seaboard. The mines of the Port Henry Company, Cheever, and others of the older and better known magnetites of this region, have been frequently described.

Of later years extensive development has been made of the Crown Point ores, a magnetic iron ore largely mixed with quartz, but otherwise free from impurities, and making an iron claimed to be adapted to use in the Bessemer converter. These mines are situated some twelve miles back from the lake, with which they are connected by a railroad built by the company owning and working them. At Crown Point, on Lake Champlain, at the terminus of this railway, are built the furnaces of the Crown Point Iron Company, two new stacks of 66 feet in hight and 18 feet diameter of boshes, with an average annual capacity of 30,000 tons, and using, of course, anthracite fuel. The plant here is of the best modern type of blast furnace construction, the buildings are of brick, and the entire appurtenances of the first class, presenting an imposing appearance from the lake.

In view of the future demands of the industry and the interest which attaches to every source of ore supply, the enormous deposits of magnetic ores on the shores of Lake Champlain, further to the north, invite the close attention of both mineralogists, and capitalists, while offering instruction to both. The ores referred to are found in a mountain, of which indeed they compose apparently the integral mass, on the western shore of Lake Champlain, in the town of Westport, Essex county; the mountain range occupying almost the entire distance from the northern end of Westport harbor, a deep bay, to Split Rock Light House, just below the village of Essex. The hight of this range, or mountain, from the lake is some 950 feet; in many places almost precipitious, in others sloping gradually, and cut by ravines and gulches affording opportunities for roadways to the lake. Fronting this tract throughout its whole length is sufficient depth of water for any vessel navigating the lake, and offering unlimited facilities for the shipment of ore. The face of the mountain is here divided into ledges of from 150 to 200 feet in hight, rising one above the other, and seamed with veins of black magnetic iron ore, varying from 10 to 50 feet in width, and in one case presenting an outcrop of 120 feet in width. From the rugged and precipitous appearance of the mountain side one would suppose the original operators here must have been bold men; but enterprise and patient labor have to some extent opened the veins, and constructed at the lake side a large dock for ore shipment, itself entirely of solid ore, and requiring, by reason of the depth of water, thousands of tons of iron ore in its completion.

The district lying between Crown Point and Plattsburgh, on the western shore of Lake Champlain, and running westward into the Adirondack Mountains, consists of that series of rocks which are known as belonging to the Laurentian, and are of corresponding character with a similar belt extending through Canada, and appearing, largely developed, on the coast of Labrador, with the iron mountain of Missouri, with the Northwestern coast of Scotland, and forming a large portion of Norway. In most of these districts these rocks are rich in the oxides of iron, which is more particularly the case in Norway, Missouri and in Lake Champlain. One reason of the especial economical value of these rocks consists in their belonging to a period prior, so far as all evidences exist, to animal or vegetable life, and hence their practical freedom from phosphorus. The largest development of these ores on the shores of Lake Champlain, and those most attractive to the iron manufacturer by reason of their accessibility, are on that part of Lake Champlain lying between the villages of Westport and Essex, and herein referred to, where immense bluffs, cropping out on the shore of the lake, rise to a maximum height of 1000 feet, and are of a thickness which has not yet been fully ascertained. Like all the rocks of this period they exist in a regular stratified formation, which has been disturbed and occasionally broken into nearly parallel ridges by igneous action, intruded masses of granite and porphyry appearing throughout the district. The tract containing these deposits, and which was the subject of examination for these notes, consists of some 2,000 acres, five miles north of Westport village, and extending on the lake four miles, with a width of a mile and a quarter on an average, and varying in altitude above Lake Champlain from 150 to 1000 feet. At and above the ore dock, at which passengers from Westport are landed by the tug Curlew, plying from Port Henry to Vergennes, Vermont, on Otter River or Creek emptying on the east shore of the lake, are the principal workings as yet made on this immense amount of ore. Here the mountain range is divided by a large ravine, one side of which is almost a precipice, and has been locally named North and South Mountain. At this point, being about the center of the lake front, is a tract of two hundred acres, now mined by parties from New York, connected with one of the leading iron companies of the Lehigh Valley, although the property is not owned or worked by the corporation referred to. Climbing the mountain by a series of steps cut in the rock and earth, alongside of an ore shute, the principal opening of the working is reached. Here, at a hight of 150 feet above the level of the lake, are three prominent veins, cropping at the lake, and increasing in width higher up, traceable directly to the summit of the mountain, 950 feet above, and again showing similar outcrops and the same or greater relative width on the other side of the range, a distance of a mile and a half. From this statement some idea may be formed of the immense amount of iron ore contained in this deposit. To decide on the width or thickness of these veins is difficult, owing to the disturbance of the formation, which is peculiar and unusual, and in the view of several of the most eminent mining engineers of the country present at the time these notes were taken, it is probable that the three veins will, on reaching a reasonable depth in the working, be found to be one immense vein or deposit of magnetic ore, which has been twisted and upheaved in the formation. The widths, however, as stated by surveys made by two engineers of the State Canal Department, are as follows:

No. 1, 7 feet wide at lake, 30 feet in center of hill front and 50 feet at the other outcrop.

No. 2, 40 feet at lake, 62 feet in center and 56 at extremity.

No, 3, 121 feet wide at lake, 50 feet in center and 75 feet at the extremity.

These measurements, it is to be stated, were from outcrops before any considerable developments had been made. On vein No. 2 are the principal workings. Here a drift has been run in some 100 feet, from which a slope had been sunk on the vein about 25 to 30 feet, giving a vein working some 20 feet wide, with, as yet, no evidence of reaching the other side. During the sinking of this slope the character of the ore has materially improved, changing from a hard, dense ore to a much softer granular mass, and resembling some of the best ores of the Port Henry company. This slope is now being worked with three shifts, and, if prosecuted, will very shortly determine, in all probability, the existence of a very extensive deposit of superior ore for Bessemer pig. The other two veins have only been partially opened, the exploration having been confined to blasting off the face of the mountain and opening some trivial workings, sufficient, however, to demonstrate the great size of the veins and to furnish trial cargoes of the ore. On the South Mountain, or the far side of the dividing ravine, are four more distinct veins, averaging by the same measurements fifteen feet in width, and of the same general character of ore, with similar terminal outcrops on both sides of the range. Following to the north, and beyond the three veins first named and worked, are three more, traceable by outcrop, as in the previous cases, from the top of the mountain to the lake, and known as the Derby lot. Beyond this, still north, are four more veins of generally softer ore, and one small but apparently very rich and pure vein cropping, only some two feet in width, but increasing rapidly on working. Adjoining this tract, on the north and east, is the point of the mountain, at the foot of which is located the Split Rock Light House, a small tract having been purchased by the general government for the purpose. On this location is a very curious deposit of decomposed ore, considerably micaceous, and losing in washing but one ounce to the pound; the residue being a fine black magnetic powder, very rich in iron, and said to be, as it probably is, highly adapted for steel melting and for fettling, as either "cold fix" or mixed with clay for the ordinary method of fettling in vogue east of the mountains. The deposit of this curious ore is of immense size, and easily deliverable at the lake front by a tramway or chute, as, indeed, all the ore of the region is. On the same lot is a very large vein of hard ore, at least 30 feet wide at opening, with a four foot vein within a short distance. Yet further to the north and west, at an elevation of 600 feet above the lake, and distant from it about one mile by an easy descent through a cultivated country, the point of the mountain having been now turned, is probably the most valuable ore of the region, both in quality and quantity. Here is an outcrop fully 200 feet wide, the whole of the country rock being strongly marked with ore indications, the cap or overlaying rock varying from two to three inches in thickness, and the ore massed beneath in a glittering crystalline conglomerate. The general appearance of this ore is highly similar to that of the celebrated Cheever ore; the character of the gangue rock is precisely the same, and the ore has been pronounced by both experts and miners practically the same deposit, as it is also geographically located on a line of continuation north from that celebrated vein. Should these opinions be borne out by exploitation, the importance of this deposit to the iron industry can be easily imagined, few ores of the country having rivalled Cheever in desirability or good working qualities. Here a shaft some 20 feet deep has been sunk, and from it some 200 tons of very fine ore taken, the quality improving very rapidly on getting down in the vein, while as yet no limit to its size has, of course, been reached. On the lake shore, below this deposit, is a natural site for furnaces, with unlimited dumping ground for slag offered by the lake, with excellent roofing slate at hand, with limestone in easy distance, and with a natural highway in front for communication with market and for the transportation of fuel, the only adjunct for iron making not here provided by nature. Here, at some no very distant day, will be established great iron and steel works, utilizing the ore deposits of the mountain range, and supplying the cities and villages south and west with raw material for consumption in the great iron industries.

Of the general character of the ores of this locality, it may be safely said that they promise all the elements necessary for the production of a Bessemer pig metal, as also for that of the strongest and toughest iron, and in admixture have already produced very superior irons and steels. Sulphur and phosphorus are practically absent, while the record of furnace workings of the outcrop, and naturally leaner ores, has been between 50 and 60 per cent., as stated by experts who conducted these workings. An analysis of an aggregated sample from 15 pieces of the hard ores from the veins first noted herein, gave as follows:

Magnetic oxide of Iron	71·80
Moisture	·76
Silica	9·44
Sulphur	·63
Phosphorus	·04
Lime	·72
Magnesia	1·08
Protoxide of Manganese	·15
Alumina	8·60
Titanic Acid	7·28
	100 00

This was from outcrops entirely, or practically so.

Of the working of these ores in the blast furnace, and also of the treatment of the resulting pig in rolling mills, some satisfactory tests were made some years since, the property not having been developed until the last year to any extent. In 1869 a trial lot of some 100 tons of this ore was worked in the blast furnace of the Rochester Iron Manufacturing Company, at Charlotte, N. Y., the ore being mixed with Lake Superior, Keene and Ontario ores, in proportion of 25 per cent. each. This working produced a first-class No. 1 pig iron of extraordinary strength, as testified to by the expert, giving a yield of 50 to 60 per cent. of iron. The manager of this furnace, Mr. John Horton, states of this working that the iron made by using this ore was "improved in every particular—in strength to a remarkable degree." The resulting pig from this working was puddled at the Cohoes Rolling Mill, N. Y., in February, 1870, and Mr. Page, of the firm of Morrison, Colwell & Page, proprietors of the above works, and an iron master well known to the trade, stated that "the pig was of good grain, uniform and strong. In the puddling furnace it works admirably well, will stand a very high heat, and for puddling purposes I pronounce it equal to any iron in the market." Working it from the puddled bar in the mill, it carries with it the same beautiful, soft and strong nature, and when finished into bars, bands or otherwise, is very strong, with a fine finish and free from red shortness. This would appear to be conclusive testimony as to the quality of the iron, and is certainly of weight from the source it came. But these ores were further tested in Pittsburgh. There, at the Superior Iron Company's Furnace, in April, 1870, Mr. B. Crowther, the superintendent then, stated, after using 100 tons of this ore, that it improved the iron, making a very strong metal, and that it would enable the use of more "mill cinder." At this test the charge was said to have been one-third each of Jackson, Lake Superior ore, Split Rock Champlain ore, and mill cinder. The resulting pig was stated by the proprietors of the Fort Pitt Iron Works, and of the Union Iron Mills, as making a strong "neutral" iron, working well under the hammer, and showing a clear fracture in breaking, with a regular fibre. From these statements it would appear that these ores possess the qualities most desired both by furnaces and mill men, while the possibility of using additional quantities of mill cinder is of great advantage, the product still being an iron of superior strength.

The commercial advantages of this deposit over most other mines of the region are clearly apparent. The older and most worked mines of this locality are not only of considerable depth, varying from one to six hundred feet, but in many cases have to raise an equal quantity of rock with the ore, which, when won, is still from six to thirteen miles from navigation, to be transported by rail or team.

The ore here being deliverable directly into boats by gravity, gives an economy in delivery alone equal to some two dollars per ton, while the quantity capable of being mined daily is only limited by the strength of the force employed. The high prices prevalent for ores of this region cannot be expected to continue when these deposits are fairly opened; while, judging from the history of the ores further south, the richness of these ores will increase similarly in working. From such deposits as this it is that the trade in the future is to look for its supplies of cheap and strong pig metal.

The locality possesses the further commercial advantage of water transportation, either to the works of New York, New Jersey and Eastern Pennsylvania, or to Montreal, Buffalo, Erie, Cleveland, Pittsburgh (part rail), and thence to Western Pennsylvania and Ohio. Particularly suited for admixture with native ores, these magnetites offer advantages to the furnaces of the Shenango and Mahoning Valleys. Beside the lake transportation, the railroad from Whitehall to Plattsburgh is now in course of construction, and will run within a mile of these ores, on the west slope of the mountain range; supplying winter transportation at low rates, the policy of the company being to carry ores at a rate of one cent per ton per mile. Comparing the cost of these ores with those of other magnetites, the following may be considered a fair statement. Ore can undoubtedly be put on board boats at these mines at $2 per ton, paying the owners a fair profit, and even a handsome profit, considering the abundance *in situ*. Water freights to Albany are not to exceed $2 per ton; to Philadelphia, $3·50 to $4, while with the improved lockage and the use of steam canal boats, these rates must be lowered materially. Given rates given, however, and we have a 55 to 60 per cent. magnetite ore, free from sulphur and phosphorus, deliverable to the furnaces of the Hudson or of the Schuylkill and Lehigh Valleys, at from $4 to $6 per ton. This is too well known to be the desideratum of the trade to need comment. As to iron making on the spot, basing the price of coal at $6·51 per ton, delivered at furnaces, the present rate of contract price by the Delaware and Hudson Canal Company, the cost of the product cannot exceed $18 to $20 per ton, being made at near or slightly below these figures, as can be clearly demonstrated. Since visiting this region, the writer has been struck with the singular unanimity of the opinions expressed by the geologists and metallurgists who have previously examined the locality. Prof. James Hall, State geologist, of New York, in 1869, regarded it as "practically inexhaustible." Col. Hogan, engineer of the State Canal Department, after having personally measured the different veins on the surface, "does not hesitate to say it is the most extensive ore deposit he has ever examined." Prof. Herring, of Fort Edward, N. Y., chemist and mineralogist, calls it the largest deposit of magnetic ore in the State of New York, and that he had seen none equal to it in the United States. Further, he believes the ores "to be as good for the manufacture of Bessemer steel as any that can be found in the world." Such unanimity of opinion can only be the result of strong and truthful impressions. For Western deliveries these ores will compete favorably with the Lake Superior ores, freights via Montreal to Cleveland being but $3·60, and at the price given for ore, placing it in Cleveland for $5·60 per ton with $2 less freight than Lake Superior ores, and little over the price of these at the shipping point. For fettling purposes and use in admixture with mill cinder these ores directly compete with the iron mountain ores of Missouri in price, as well as in freedom from sulphur. Naturally such advantages suggest the existence of some hidden obstacle to the use of these deposits. These obstacles, if any there be, are to be found in three directions. The first has been the proximity of large, well developed and rich ores of high reputation, and producing a powerful business competition with heavy capitalists. The second is the absence of systematized and intelligently conducted development on the part of the owners of the property; and the third *has been*, but—grace to the slow progress of practical metallurgy—no longer is, the presence of titanic acid in the ores. Titanium has prevented the iron masters of the United States from earning much profit, and from using many good ores; fortunately this bugbear of an obsolete regime in furnace practice is dying out, and we now know that titanic acid present in an ore is proof positive of the absence of both sulphur and phosphorus to any injurious extent, and that the iron smelted from such ores is invariably of superior strength, while of the best quality for conversion into steel. At this writing ores containing 27 per cent. of titanic acid are being smelted by the Bay St. Paul Iron Company, of the Province of Quebec, Canada, and their product, a No. 1 Bessemer pig, is shipped to England. At the Norton Iron Works, England, the titaniferous ores of Norway, bearing 40 per cent. titanium, and classified as "ilmenites," produced, by intelligent working, a Bessemer pig much sought for at double the market price for Cumberland pig. The iron from these ores commanded threefold the price of ordinary pig, and was used by the admiralty for armor plates and purposes requiring great tensile strength, bar sections of this iron having been tested over 100,000 lbs. to the square inch. Some of these ores are rich in titanic acid, while others contain barely a trace. Probably a large part will be found to contain from 7 to 10 per cent. of this element. It is, however, a well demonstrated fact that these titaniferous ores are not chemically but mechanically united, and it is not improbable that an economical mechanical mode of separation may yet be devised. Failing such mechanical method, however, intelligent metallurgy will reduce these ores with the same advantages accruing in the cases above mentioned elsewhere. As is well known, Mushet is making superior steel strictly from titaniferous ores, while those ironmasters who have puddled in a fettling of titanic ore are well aware of the lasting qualities of such a lining, as well as of the improved quality of the resulting puddled bar. As all the irons smelted from the ores named on Lake Champlain bear the character of unusual strength and toughness, bending flat when cold without crack or seam, the results will, doubtless, be the same here. The percentage of titantic acid in these ores, even if considered objectionable, is not sufficient to militate with the successful working of the stock. In calling attention to these ores we simply indicate to the trade a new source of supply for iron making. Of the designs of the owners of the property we are not informed, save that they propose to proceed to the development of the mines on a large scale, when trade shall justify it. That foreign capital, always wide awake to the good things of our country, should seek these ores is natural, since at present prices of freights pig iron could be made here and shipped to England to-day at a profit. Hence the offer of English iron makers during the present summer, after an examination was made by their engineer, of £150,000 sterling, or $750,000 for a portion of the property, is not surprising. Fortunately for the interests of the home trade this offer was refused. As one of the many extensive sources of supply of ores in various regions of the United States, from time to time described in *The Iron Age*, this deposit on Lake Champlain, as yet scarcely developed, offers the richest promise for the future, and in connection with others, heretofore named, encourages the hope of abundant and cheap ores which may give a cheap pig iron at a fair profit to both ore and furnace owner—the want of the age.

Trade Marks in France.

The subject of trade marks and their registration, legalization, or security in form, is highly important to the manufacturer, the merchant and the consumer, and every step taken by our own or other governments is of interest.

In November last a law was passed in the French National Assembly for the establishment of special stamps, punches, &c., giving the guarantee of the government to trade marks. The stamp of the government was to bear a tax in proportion to the value of the objects guaranteed, and this duty and all the conditions of the law were left to be settled by an administrative act. The regulations have now been officially published, and are as follows:

The commercial territory of France is divided into ten circumscriptions, the centers of which are Lille, Rouen, Paris, Chalons-sur-Marne, Nantes, Tours, Lyons, Bordeaux, Toulouse and Marseilles. The trade marks can only be stamped at these chief towns, where they are registered under the law of 1857. The charge for stamping an object of the value of not more than five francs is fixed at five centimes, or one half-penny, and for stamping tickets, &c., six centimes each, the charge rising gradually from one penny on articles of the value of ten francs to five francs on the value of £14 and above that sum.

All marks, whether of manufacturers or merchants, presented for the government guarantee must have been previously registered according to the law of 1857, above quoted, either in one of the towns named above or in one of the sixteen towns where gold and silver articles are hall marked. The application of the public guarantee by means of the punch is confined to these sixteen places.

The formalities are as follows: At the time of declaration, an example of the trade mark, certified by an officer of the registrar as in conformity with that registered and signed by the proprietors of the mark, and by all their partners or associates, who have the right to ask for the government guarantee. The size of tickets, that is to say of trade marks, in the form of adhesive stamps is limited to 35 millimetres (say 1 2-5 of an inch) in any direction, and dark colored papers are to be avoided, as not taking a stamp well. The marking by means of the punch will only be applied to tickets, and to objects formed of metal, and presenting sufficient resistance.

It will be seen that the guarantee of the government thus assures the public that the trade marks in circulation are the registered property of those who use them.

"Direct Processes."

To the Editor of The Iron Age: My attention has recently been called to the following remarks of your Philadelphia correspondent of August 17th, instant:

"Dupuy says no direct process for sponge will succeed in a column of ore high or low."

This is not exactly my phraseology, but I accept it. Chenot made sponge twenty years ago, highly endorsed by good authorities for its purity, but it never sustained itself in practical use. Nor has sponge made since then by any process been disinterestedly accepted and continuously practiced as a successful manufacture.

I assert again that the production of "sponge," as a distinct manufacture, is not needed. The cells or pores, or whatever else they may be called, made by the exit of oxygen from the ore, leaves the delicate particles of iron separated, or in a honeycomb condition. By a continuous increasing heat the new made metal then becomes softened. In that condition the particles settle, and paste themselves together into an almost compact mass, and may be withdrawn and forged. If made from reasonably pure ores the waste will be surprisingly small.

Ore and carbon placed in thin sheet iron cases of a convenient size to handle allows a quick penetration of heat on all sides, and when the contents is solidified to metal, the whole is conveniently forged and rolled, making a very superior and very cheap wrought iron.

Your correspondent further classes the process of Eldridge, Wheeler and my own to be one and the same thing. In reply to this I will only say I patented the working of ores to metal in covered or uncovered iron cases several years before the issue of Wheeler's patent. He, I understand, claims to work scrap iron or steel in covered cases, and not ores. The processes are, therefore, distinct.

CHARLES M. DUPUY,
No. 4102 Spruce street, Philadelphia.
Sept. 21st, 1874.

The Iron Industries in Africa.—All accounts from Algeria concur in representing the development of the iron mines of this colony as becoming every day of more importance. The iron mine Ain-Mokhra, or Mokta-el-Hadid, as it is more commonly called, is being worked most successfully, and has exceeded in its production the most sanguine hopes of its owners. Before the Franco-German war the output of iron ore from this mine had reached some 20,000 tons per month and, although during the war it declined greatly, it has now reached more than 30,000 tons per month, and at this moment some eight trains, each of 200 tons, or 1600 tons in all, are sent per day down to the port of Bona. Although the French companies, which contracted for the ore in advance, only paid 9¼ francs per ton, the last sales of the ore have been effected at 27 francs per ton. This mine, in 1872, exported 366,614 tons, and during the first six months of 1873 some 220,000 tons, giving employment to a total number of 1542 hands, which is 378 more than during the previous year. About twenty-eight miles from Setif, along the ancient road to Bougie, is the important Djbel iron mine, and near Aien-Rouah, the concessions applied for by the Nœvus Nicolas and Cie., considerable deposits of exceptionally rich iron ore have been opened upon by levels and shafts. This company propose making a railway from the mine to the port of Bougie, and employing a large number of men in its development.—*The "Journal" of the Iron and Steel Institute.*

Setting Bessemer Converter Bottoms.*

BY MR. ALEX. L. HOLLEY, NEW YORK.

The endurance of Bessemer converter tuyeres, and of the refractory bottom in which they are imbedded, although very various under different conditions of material and treatment, may be set down as not exceeding ten heats, in England and America. It frequently falls below five heats. In order, then, to make 30 heats per 24 hours, out of one pair of converters, which is the standard practice in American works, it is necessary to put in and dry three and frequently four sets of tuyeres during the day. Although one set may last six or eight hours, yet in order to give time for occasional extra repairs of the lining, and to make sure of having one vessel always ready, it is found, practically, in America, that when a plant is to be driven up to a large and consequently paying production, a new set of tuyeres must be made ready for use in two or at most three hours after the last heat on the old bottom. And it is furthermore found—and this is of equal importance—that the new bottom must be thoroughly dry and sound, so as to wear evenly, and to prevent the metal from breaking through.

The old method of replacing vessel bottoms was knocking out the stumps of the worn tuyeres, inserting new tuyeres, and making the bottom good around them in one of two ways.

1. Pouring in semi-fluid ganister and water, and leaving it to set as best it might. This mud bottom was soft and porous, and unless fired for five or six hours, was very wet. It was therefore liable to rapid and irregular denudation, and to flaking off by the formation of steam.

2. The other method of making the bottom good around the tuyeres, still practiced in many European works, is waiting till the vessel is so cool that a workman can enter it, and then ramming plastic ganister around the tuyeres, from within, and firing the vessel until the whole mass is set. Unless the vessel is cooled by water (which injures the lining) some hours must elapse before it can be entered, and the bottom cannot be thoroughly dried in half a day.

The American works began with a much better system, viz., Mr. Bessemer's duplicate bottoms. The tuyeres, and the whole mass of ganister around them, were removed, and a new bottom, previously rammed and dried, was inserted. But still the difficulty remained of closing the annular space between the new bottom and the walls of the vessel. Pouring in semi-fluid ganister moistened and softened the bottom; waiting for the vessel to cool, so as to ram the annular space from within, consumed still more time.

Another of Mr. Bessemer's devices was then resorted to. The face of the new bottom, where it came next the walls of the vessel, was heavily luted with a paste of clay and ganister; the bottom was then pressed hard into place, so that this paste would be forced into all the interstices and so seal the joint.

After the most careful experimenting for several years, with flat joints and conical joints of every degree of taper, this method was abandoned in all the leading American works as uncertain and unsafe. Generally, the luting would perfectly stop the opening between the bottom and the wall of the vessel, but sometimes an unsound place would be left, and the metal would break through it. The cost of a few disasters of this kind was enough to pay for reconstruction on a safe system.

The plan finally adopted and now used almost without exception in America, and to some extent elsewhere, is shown in the engraving above. The duplicate bottom is so constructed as to leave the annular space between it and the wall of the vessel open to the exterior of the vessel, so that a workman standing outside can ram the annular space, and thus make a sound joint without saturating it with water, and while the interior of the vessel is still red hot.

The worn bottom being removed by a hydraulic lift or by any convenient means, the new one is inserted at once, and the annular space (*a*) is quickly rammed with plastic cakes of ganister, thus making the lining continuous and solid. Sometimes a part of the wall of the vessel comes away with the bottom, and sometimes part of the bottom sticks to the wall of the vessel. The annular space is thus left so irregular that merely luting the new bottom and pressing it up could not make a good joint; but when all these irregular cavities are sealed and filled from the outside, the joint is always sound.

The earlier joints of this kind were made more nearly cylindrical. The angle shown—about 45 degs.—has been adopted, first, to prevent pulling away the wall of the vessel; the comparatively flat joint will obviously part more easily, leaving a cleaner fracture. Second, the flat joint is employed in order to save time by a partial application of the luting system just described. The face of the new bottom is smeared with plastic ganister and pressed into place; then the joint is rammed from without, and more ganister is inserted where it is needed.

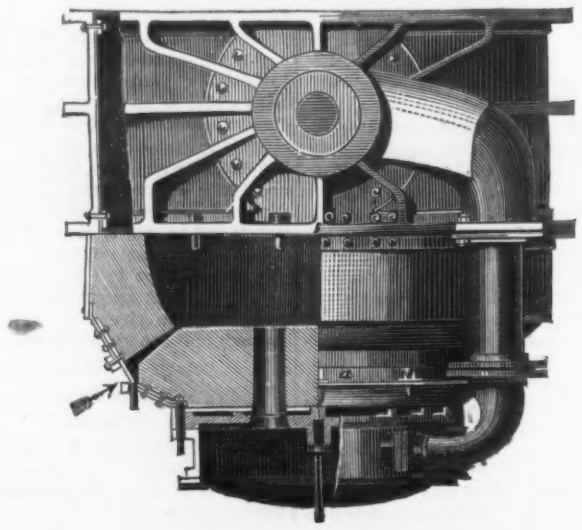
The advantages of this system are obviously as follows:

1. The new bottom is immediately set, without waiting for the vessel to cool. The entire operation has often been performed in less than an hour. When one vessel is being lined and the other is running alone, 24 heats per day are often made on three bottoms in the one vessel. The Troy Works made 2898 tons of ingots in March, 1874, working 16 days with two 5-ton vessels and 10 days with but one.

2. The new bottom, having been previously baked, and not being saturated with water when it is inserted, is as sound and uniform as the materials used can make it. It therefore wears evenly and never blows up from the formation of steam.

3. The material of the joint, being driven into all the interstices, and being comparatively dry, soon becomes as solid as any part of the wall. A joint rammed in this way has never been known to fail, as far as the author is aware; and the bursting through of the metal, so frequent in the early practice, now never occurs for periods of many months, except from the occasional failure of a tuyere, and a tuyere may be easily and soundly replaced by a dummy, in these hard dry bottoms.

The cost of this form of converter bottom is no greater than that of ordinary forms, and it may be readily applied to converters in use.



SECTION OF AMERICAN CONVERTER BOTTOM.

* Paper read before the Iron and Steel Institute at Barrow.

PHILADELPHIA CORRESPONDENCE.

PHILADELPHIA, Sept. 28, 1874.

The principal hopes of a revival of business, now that any active fall trade is not to be hoped for, lie in an improvement in the prices of breadstuffs abroad, and the creation of a market for our heavy crops. This, it is fortunately the case, seems likely to be not far distant. Although the prices of grain have declined very materially since the midsummer, it is not now thought they can go lower, while even under the most favorable circumstances of harvest possible abroad, it is authoritatively stated Great Britain can produce but 28 per cent. of the total amount required for consumption there. The present crop of the United States will be required abroad to the extent of some 56,000,000 bushels, the sale of which cannot fail to give a market for all other commodities now languishing. The currency question or any political matter is not of near so much consequence to the iron trade as profitable harvests to the agriculturist, who ultimately furnishes the means for the purchase of all the commodities into which the product of our industry enters. A point to be noticed in manufacturing circles is, that owing to the low price of cotton goods and textile fabrics the manufacturers of New England have in conference decided to curtail production one-third, and this action will be universally carried out after October 1, prox. The reason assigned for this is that the price of such goods is now below the cost of manufacture—without doubt a good and valid reason to stop production. The iron trade, however, has been for just about a year going through the same thing. Iron has been, and is in many cases today, sold below the actual cost of production; yet no general action was taken to curtail the output, nor does it seem probable that such could have been done. Why? Are the adverse interests which animate the manufacture of cotton goods any less forcible than those which exist in the iron trade? Or are the members of the one trade thoroughly organized, with power to act as a unit for the common good, while the other has never outlived the individual jealousies and foolish sectional competition of an unorganized industry? Undoubtedly, the latter state of affairs is the true one. In a measure, however, the public is to blame. Long before the panic—in the spring of 1873—when it was evident to the far seeing that the iron production had outgrown the present demand, and prices were drooping, a number of furnace owners in council recommended to that portion of the iron industry a curtailment of product throughout the country. This action, being made public, was met with a storm of opprobrium. "The iron masters were combining to enhance prices. The bloated favorites of protection would so rule the industry as to put the consumers of iron entirely at the mercy of their grasping avarice," &c., &c. These were actual statements at the time, and came from New York and New England. Now, New England stops her print mills to give the market a chance to recover, and no one sees that they are combining to enhance prices. It is one of those peculiarities of the average New Englander that he can never see that what is sauce for the cotton mill goose should, in all fairness, be allotted to the iron furnace gander, to use a homely but true expression. Every trade should be so organized as to enable the graduation of production to the requirements of consumption, and by practical and complete individual association can this alone be done.

The grand topic here now is whether or not the Pennsylvania Railroad Company shall build stock yards in a certain place on the Schuylkill River. The intention is to erect both yards for the reception of cattle and abattoirs for their slaughtering, and the plans propose an arrangement which will be supplied with all modern conveniences for cleanliness, while none of the offensive branches of tallow rendering, etc., will be carried on. For some reasons it is a desirable plan, while for others it threatens to depreciate property, though why an abattoir should be any more offensive than a gas works, which it is directly opposite, remains to be seen. The result will be probably that the railroad company will have its own way, as it generally happens, and the matter will terminate as such things established by this company have hitherto, to the ultimate advantage of the city.

The subject of a grand union depot for all the railroads entering the city has for some time been discussed and is approaching definite shape. Independent of the necessity of this movement for convenience, it is made necessary by the absolute demand for the removal of railway tracks from the park. The park commission, the railroad companies and city councils have conferred on the subject, and the probability now is that a new union depot will be built very shortly at some point in West Philadelphia, near the Pennsylvania Railroad Station, and that new routes and bridges will be constructed so as to bring all the roads in on one track outside the park limits.

Notwithstanding the fact that railroad shareholders generally believe that they can do their own business best, and that one of the numerous private freight companies, the "Empire Industrial Line," has been ordered to be withdrawn, we find a new corporation for kindred purposes just established. This is the "Railway Equipment Trust, of Pennsylvania," and has for its object the construction of cars, to be leased to railway companies, which, says the account, very naively, after paying an interest of eight per cent. upon the cost of the cars, will leave a surplus applicable to the payment of such cost, by which process the lessees gradually become the owners of the cars. The ordinary intellect fails to discover the profit to the railway shareholder of thus buying cars on the cheap furniture "instalment plan" at advanced cost and high rates of interest. At all events 1000 cars to cost $600 each have been contracted for to be probably leased by the Pennsylvania Railroad, and some rolling mill will get a good order for the iron.

The furnace owners of the United States cannot fail to notice with pleasure your statement of the arrival of Isaac Lowthian Bell, Esq., president of the British Iron and Steel Institute, in this country. That he will be extended every courtesy and opportunity for examination is foreshadowed in the announcement of his unofficial visit. Mr. Bell has contributed largely to the progress of the iron industry of the world, both by his able treatise on the Chemical Phenomena of Iron Smelting and his conduct of various extensive works. Always recognizing the advancement of the iron trade in this country, he has, in his official capacity, given courteous greeting to Americans abroad, and deserves every attention that can be shown. Another prominent English visitor in the same trade is also among us, of whom I have seen no note in your columns. I refer to Mr. Thomas Whitwell, of Stockton on-Tees, the inventor of the Whitwell fire clay stoves for hot blast. Mr. Whitwell proposes visiting all the blast furnaces of the country, which his time will permit, and can give very valuable information on this subject to furnace owners. The results of the introduction of this form of hot blast, both in England and on the Continent, have been so satisfactory that they will lead undoubtedly to its general use. These advantages result in a direct economy of $5 per ton in cost of production, and a greatly increased yield. One furnace at Esch, in Prussia, fitted with these stoves, is now regularly producing 770 tons of iron weekly, on a consumption of less than 21 cwt. of coke to the ton. These are results not to be overlooked, and already these stoves are fitting for some seven or more stacks in the United States.

Trade Report.

Office of THE IRON AGE,
WEDNESDAY EVENING, Sept. 30, 1874.

Since our last report a very considerable activity has developed in Wall street, which was especially noticeable to-day. In the money market call loans are still obtainable at 2 @ 3 per cent., and prime mercantile paper is fairly quotable at 5½ @ 7½ per cent. The feeling in the general markets is very good, and in most branches of business the aggregate of the fall trade will compare favorably with the average of previous seasons. There is always a great deal of complaint, and probably more this year than usual, owing to the distrust still prevalent; the small business of the past two seasons and the fact that large profits are not likely to be realized for some time to come upon limited transactions. Buyers now in the market want, as the rule, only the best goods at these prices, and those who sell for small profits are getting their trade. There is, on the other hand, a closer scrutiny of credits, and less disposition to accept doubtful paper rather than lose trade; and good buyers are not disposed to buy anything they cannot pay for when they agree to. These facts show a general disposition to do business on a safer basis than hitherto, which cannot fail to bring about good results. The panic has taught business men many useful lessons which they are not likely to forget very soon.

The gold market continues firm. Cash gold commands 1¼ and 2 per cent. per annum for use. The following shows the daily range of premium:

	Highest.	Lowest.
Thursday	109⅝	109¼
Friday	109⅝	109⅝
Saturday	109⅝	109¼
Monday	110	109¾
Tuesday	110¼	109¾
Wednesday	110¾	110

The stock market has fluctuated somewhat, but has steadily developed a tendency to greater strength. The principal dealings are in Northern, Lake Shore, Pacific Mail, St. Paul, Western Union, Wabash, Erie, Union Pacific, Rock Island and N. Y. Central.

Government bonds are strong and advancing. State bonds are dull. There is a moderate demand for desirable railway mortgages.

The following tables show the foreign trade movements for the week:

IMPORTS.

	1872.	1873.	1874.
Total for week..	$8,337,021	$10,902,468	$7,504,092
Prev. reported...	326,192,153	297,309,308	295,437,515
Since Jan. 1....	$334,579,173	$308,211,676	$302,940,607

Included in the imports of general merchandise for the week are:

	Quant.	Value.
Brass goods	10	$1,265
Bismuth	2	710
Bronzes	89	14,412
Chains and anchors	339	13,314
Cutlery	116	44,080
Guns	56	10,354
Hardware	41	4,746
Iron, hoop tons	5	354
Iron, pig, tons	301	13,905
Iron sheet, tons	108	15,595
Railroad bars	7,715	135,120
Iron cotton ties	1,550	4,857
Iron, other, tons	436	59,724
Lead pigs	980	5,302
Metal goods	166	24,111
Nails	5	536
Needles	10	6,232
Old metal	1	3,136
Platina	1	3,367
Per. caps	3	621
Saddlery	10	1,509
Steel	3,825	33,679
Tin, boxes	24,470	189,949
Tin, slabs, 4770; lbs., 541,609		92,539
Wire	305	7,998
Zinc	245,970	15,112

EXPORTS EXCLUSIVE OF SPECIE.

	1872.	1873.	1874.
For the week...	$4,860,213	$6,494,941	$5,278,739
Prev. reported...	161,786,682	208,673,387	242,713,745
Since Jan 1....	$166,646,895	$215,168,228	$247,992,504

EXPORTS OF SPECIE.

Total for the week	$564,902
Previously reported	41,839,443
Total since January 1, 1874	$42,404,345
Same time in 1873	41,347,331
Same time in 1872	57,568,178

Government bonds closed as follows:

	Bid.	Asked.
U. S. Currency 6's	117¼	117¾
U. S. 6s 1881, reg.	117¼	117¾
U. S. 6s. 1881, coup	118	118¼
U. S. 1862, 5-20 reg.	112¼	113
U. S. 5-20 1862, coup.	112¼	113
U. S. 5-20 1864, reg.	114¼	114¾
U. S. 5-20 1864, coup.	115¼	115¾
U. S. 5-20 1865, reg.	115¼	115¾
U. S. 5-20 1865, coup.	115	116¼
U. S. 5-20 1865, reg. new..	115¼	115¾
U. S. 5-20 1865, coup.	115¼	115¾
U. S. 5-20 1867, reg.	116	116¼
U. S. 5-20 1867, coup.	117	117¼
U. S. 5-20 1868, reg.	116¼	116¾
U. S. 5-20 1868, coup.	117	117¼
U. S. 10-40 reg	110¾	111¼
U. S. 10-40 coup	111¾	112
U. S. 5s. 1881, reg.	112¼	112¾
U. S. 5s, 1881, coup	112¾	113¼

The following were the highest and lowest prices of stocks to-day:

	Highest.	Lowest.
N. Y. Cen. & Hudson Consolidated	101¾	101¼
Lake Shore	81¾	79¾
Rock Island	104¾	103¾
Wabash	85¾	84¾
Harlem	128¾	128¾
Western Union Telegraph	80¾	79¾
Northwestern	41¾	39¾
" Preferred	57	56
Milwaukee & St. Paul	35¾	34¾
" Pref	53¾	52¾
Pacific Mail	51¾	51
Erie	36¾	35
Ohio & Mississippi	29¾	29
Boston, Hartford & Erie	1¾	1¾
Union Pacific	37¾	36¾
C. C. & Ind. Central	14¾	13¾
At. & Pacific pref	13¾	13¾
Hannibal & St. Joseph	28	27¾
" " Preferred	83	82¾
Quicksilver	33¾	33
" Preferred	39	38
Consolidated Coal	47	47

GENERAL HARDWARE.

There is a good deal of complaint that orders are small, but they are numerous, and evidence is not wanting that both the jobbing and retail houses are carrying as light stocks as they can. When a brisk trade springs up there must be a very heavy demand. Some out of town failures have been reported this week.

The Providence Tool Company offer their "Providence" Clothes Wringers, in lots of two dozen or more, at the lowest prices quoted by manufacturers of other first-class machines in lots of 20 or 30 dozen. They offer their "Reliance" Clothes Wringers at $5 per dozen less than the "Providence."

J. Clark Wilson & Co. inform us that the price of the Eureka Can Opener, for which they are agents, has been reduced to $4 per dozen, net. This firm have now a supply of their catalogues (noticed by us last week), and will be happy to send a copy, with the discount sheet, to their friends on receipt of the first order from them.

P. & F. Corbin issue the following notice, dated October 1st:

"Change discount on Copal Bronzed Loose Joint Butts (see our price book, No. 2, page 7) to 55 per cent. Add same Butts with Bronze Metal Acorns, same list, discount 50 per cent."

There is little change in the Nail market, although the feeling seems to be a shade better. Stocks are even more broken than at our last writing, and we believe there is not a concern in the city but has a very light stock. There is, therefore, more difficulty in getting Nails than last week, but prices are not any firmer. The general quotation is $3·75, but there would be no difficulty in placing an order of 200 kegs at $3·65.

There are no changes in Foreign Hardware to report. Late advices from England are very emphatic in stating that there seems to be no prospect of any further declines, as the men are determined not to accept lower wages, although very little work is offering them.

Sargent & Co., under date of the 25th instant, issue a bulletin giving the following changes made since the date of their last discount sheet. Many of these changes have been already noticed by us. The extra discount of 10 per cent. for cash applies to the following figures:

August 22.

764, Miller's Oilers, Zinc ..... 33⅓ %
" " Brass and Copper ..... 20 %
770, High Brass Wire ..... net

Nos.	0 to 20	21 to 23	24 and 25
Lb.	$0·29	30	31

770, Sheet Brass ..... net
14 in. and under, per lb ..... $0·26
Over 14 in to 20 in " ..... ·29
Over 20 in. to 30 in. " ..... ·32

August 27.

309, No. 50, Iron Bench Screws ..... 60&10 %
599, Parker's Blind Hinges ..... 55 %
599, Seymour's " ..... 55 %
601, Huffer's " ..... 33⅓ %
626, Ladd's Shingling Hatchets ..... 40 %
All other Ladd's Hatchets ..... 33⅓ %
646, C. S. Gimlet Bits ..... 33⅓ %
646, Ladd's D. C. Gimlets Bits ..... 50 %
647, Gimlets ..... 25 %
648, Ladd's D. C. Gimlets ..... 35 %
696, No. 10 Base Knobs, Birch and Black Walnut ..... 45 %
697, Awls and Tools, Nos. 42, 43 ..... 35 %

August 28.

701, Peg Breaks ..... 25 %
701, No. 10 Spring Punches ..... 20 %
702, Iron Spokeshaves ..... 33⅓ %
705, Hammer Saw Sets, Aiken's Pattern ..... 25 %
706, No. 50, Dividers ..... 30 %
707, Calipers, Nos. 62, 63, 65 ..... 20 %
707, Cigar Box Openers ..... 33⅓ %
708, Sardine Openers ..... 33⅓ %
709, Box Scrapers ..... 20 %
711, Fluting Scissors (Change list of No. 31 to $1·50) ..... 25 %
714, 715, Eagle Shears ..... 70 %
725, Platform Scales ..... 25 %
732, Mouse Traps ..... 45 %
737, Boardman's Spoons ..... 45&5 %
754, Torrey's Door Springs ..... 50 %
768, B. & A. Flint Sand Paper ..... 6 %
768, B. & A. Emery " ..... 6 %
771, Galvanized Pump Chain ..... 10 %
774, Cork Lined Faucets ..... 60 %
795-799, Hotchkiss' Curry Combs ..... 20 %

August 29.

288, 289, Strap and T Hinges ..... 20&10 %

September 3.

716, Seymour's Straight Trimmers ..... 60 %
718, Cast Iron Shears ..... 25 %
744, Hand Bells ..... 65&5 %

September 12.

195, Cornice Hooks and Eyes ..... 70&10 %
195, Gate Hooks and Eyes ..... 70&10 %
196, 197, Screw Eyes ..... 70&10 %
198, Screw Hooks ..... 70&10 %
600, Clark's Blind Hinges, Nos. 1 and 3 ..... 55 %
" " Nos 2 to 6 ..... 25 %
" " No. 20 ..... 60 %
623, Railroad Picks ..... 40 %
611, Boring Machines, Change list of No. 30 to $5·40; No. 35 to $9·50 ..... 30 %

September 21.

723, Turn Table Apple Parers, $6·75 per dozen ..... net

September 23.

328, Stebbins' Gates, Nos. 1 to 4 ..... 65 %
329, " Nos. 51 to 54 ..... 65 %

Sargent & Co. also issue the following notice:

"Referring to a circular issued by another manufacturer cautioning the trade against buying our Store Door Handles and Escutcheons combined, Nos. 235 and 435, represented on pages 120 and 121 of our book and on inside pages of this bulletin, we take this opportunity to inform the public that we shall continue to make and sell these Handles, and that purchasers need not fear any annoyance or trouble from any legal proceedings on the part of those who claim the patent, and that we will guarantee and protect our customers against any loss or damage; defending the cases, should any be brought, with our own lawyers.

"That we are the original and first inventors and the first manufacturers of these goods is admitted by the contestants, and the Department Patent Examiner awarded to us the patent. An appeal was made to the full Board of Examiners, and it was again awarded to us; these two awards were made by the only practical experienced experts in the Patent Office. The *Acting* Commissioner reversed these decisions on technical grounds, and we have not a shadow of doubt that this decision of the Acting Commissioner will be set aside by the courts and the patent be finally decreed to us, the original inventors and first manufacturers."

The store of Sargent & Co. was closed on Monday, in consequence of the death of Mrs. J. B. Sargent, of New Haven.

It is not very long ago that we published a letter from Henry Disston, in which he stated that he expected to sell his Saws in Sheffield. That there is even now a market for his Saws in England is proved by a letter, dated the 1st instant, from G. M. Campbell, Ironmonger, Crook, Co. Durham, England, to Henry Disston & Sons, of which the following is a copy:

I have just received through Messrs. Churchill, London, a few of your Saws, which I ordered from an advertisement in *The Iron Age* some weeks ago. It is pleasant to state that those received have been universally admired—so much so, that I am ready to give a general order, but I am prevented through not having your price list or general catalogue.

Inclosed please find post office order for 5/, for which I will thank you to send me your illustrated list, either by post or through Messrs. Churchill, 493 Greenwich street, N. Y. I will be extremely obliged, and if the cost is any more, I will be glad to pay it.

We will, in this connection, state that we saw the other day at Graham & Haines' an order from Germany amounting to seven or eight hundred dollars, for Saws, Enterprise Coffee Mills, Planes, Axes, Hatchets, Brushes, Curry Combs, Geneva Fluters, Mann's Sieves, Boring Machines, and some other goods.

Hotchkiss Sons have filled all, or nearly all, their orders for Curry Combs, and Graham & Haines inform us that they have received from the factory a full stock complete in all but one or two numbers, from which they can fill orders promptly.

Hart, Bliven & Mead Mfg. Co. have got up a handsome sample case of Hardware for Thos. H. Briggs & Son, Raleigh, N. C., who will exhibit it at the approaching State Fair. It was forwarded to them last week.

The "Crystal Spring Filter," with porcelain-lined cooler, manufactured by John C. Jewett & Sons, Buffalo, N. Y., is an article which merits the confidence of the trade and the public. We have had one in use for some time, and experiments of various kinds have satisfied us that it will clear water, however roily, of visible impurities. The water first passes through tightly compressed sponges and gravel held in a cup, which is readily removed for cleansing. This of itself would answer the purpose for which a filter is intended; but before the water reaches the porcelain cooler it must pass through alternate layers of gravel and charcoal, which assist in rendering its clarification perfect. There is nothing to get out of order, and nothing to require renewal except the sponges, which may be occasionally replaced with advantage. This filter is the best we have ever seen for family use.

We have been shown Amidon's Patent Double Grip, Steel Jawed, Bit Brace, made by the Amidon Mfg. Co., of Miller's Falls, Mass. The price is 40 per cent. discount from the following list:

No. 14, 14 inch sweep	$33·00 per doz.
No. 12, 12 " "	30 00 "
No. 10, 10 " "	27·00 "
No. 8, 8 " "	27·00 "
Extension Bit Holder	30·00 "
Chucks	27·00 "

The manufacturers speak as follows of this Brace:

Mr. Amidon is the inventor of the Barber Improved Brace, patented in 1868, of which more have been heretofore sold than any or all other kinds of Braces; and in the production of his last pattern, he has spared no pains, time, or expense, to produce a much superior article to any ever offered in the market, embodying, as it does, all of the best qualities of other Braces, and free from the objections existing in others, and made from the best stock in the most thorough manner; and among its numerous excelling qualities are the cast steel jaws, with tempered qualities, making them equally as hard and durable as taps or dies, and will stand the severest test and hardest service and use, and shows clearly the worthlessness of malleable iron jaws used in other Braces. The jaws are constructed with a double grip, giving great strength in use and firmness in holding the bit, while the size and shape is such as to hold with equal firmness any size of shank from a fine needle to the largest sized bit, either round or square.

The head, by its peculiar structure, is so applied to the Brace as to be firm and strong, and yet simple in the design and not liable to wear or get out of order, and yet easily repaired if by accident or extensive use any repairs are needed.

Knowing that Amidon's Patent Double Grip, Steel Jawed, Bit Brace is superior to all others, yet for the purpose of giving it an early introduction, we offer it to the trade at equally low prices.

The most interesting feature of the Cincinnati Industrial Exposition, during the past week, was the contest among the manufacturers of Circular Saws for a premium and one hundred dollars in gold, which was offered for the best 56 inch Circular Saw, to be run on a left hand mill. No restriction was laid upon the maker as to the number or shape of teeth or the gauge of his saw, and the prize was open for contestants with either solid or inserted teeth. The names of the manufacturers who availed themselves of this opportunity will be found below in the order of their trial.

The trial which was expected to commence on the 21st instant, was postponed until Wednesday, the 23d.

The mill used on this occasion was one of Lane & Bodley's "Mammoth" Saw Mills. The following mode of contest was recommended by the jurors, and adopted:

1. That each saw be required to saw one poplar log, 12 feet long, 20x20, and one oak log, 12 feet long, 16x16, into one inch boards. The exact time consumed by each saw in cutting its two logs to be recorded.

2. The amount of lumber manufactured by each saw to be measured and kept separate.

3. The amount of steam used by each saw to be weighed.

4. To determine who shall lead off in the contest, the names of contestants should be placed in a hat, and drawn therefrom by a disinterested party. The first name drawn shall be the first to select his two logs, and lead off in the contest, and the others follow in rotation as their names are drawn. All parties to select their saws to be used in the contest, and place them in the possession of the jurors before the trial commences.

The engineer and setter for all saws to be furnished by Lane & Bodley. The sawyer selected by each contestant.

ORDER OF TRIALS.

1. Hogan & Sowden.
2. E. Andrews.
3. J. W. Baldridge & Co.
4. American Saw Co.
5. Emerson, Ford & Co.
6. Woodrough & McParlin.
7. R. Hoe & Co.
8. Jas. Ohlen.
9. Curtis & Co.

JURORS.

Lewis Glenn and R. S. Lee.

The first Saw put on the mandril was manufactured by Hogan & Sowden, of Cincinnati. It was a solid Saw, 56 inches in diameter, 6 to 8 gauge light, with 36 teeth. After making two cuts on a poplar log, 12 feet long, 20x20 inches, on 4⅝ inch feed, the Saw ran into the log and was by the shock disabled. It was decided to change the cone on the mill, so as to allow lighter feed. The jurors recommended the granting of the privilege to Hogan & Sowden of another trial with a new Saw, which was readily granted. The record of their second trial will be found in the following table:

	Logs.	No. of Cuts.	Feed. Inches.	Time. m. sec.	Gauge of Saw.	No. of Teeth.	Remarks.
Hogan & Sowden	Poplar.	15	3¼	2 52	10	....	Saw ran out of log.
Hogan & Sowden	Oak....	2	3¼	....	10	....	
E. Andrews	Poplar.	15	3¼	2 50	5 and 7	40	
E. Andrews	Oak....	11	2¾	2 05	5 and 7	40	
J. W. Baldridge & Co	Poplar.	15	2¾	2 53	8 and 9	48	
J. W. Baldridge & Co	Oak....	11	2¾	2 03	8 and 9	48	
American Saw Co	Poplar.	15	3¼	2 31	6 and 8	40	
American Saw Co	Oak....	11	2¾	2 02	6 and 8	40	
Emerson, Ford & Co	Poplar.	15	3¼	2 44	6 and 7	50	
Emerson, Ford & Co	Oak....	11	3¼	1 43	6 and 7	50	
Woodrough & McParlin	Poplar.	15	3¼	2 34	6 and 8	40	
Woodrough & McParlin	Oak....	11	3¼	1 45	6 and 8	40	
R. Hoe & Co	Poplar.	15	4½	2 09	5 and 8	36	
R. Hoe & Co	Oak....	⅜	4½	....	5 and 8	36	Saw ran out of log.
James Ohlen	Poplar.	15	4¾	2 53	6 and 7	33	
James Ohlen	Oak....	11	2¾	1 59	6 and 7	33	
Curtis & Co	Poplar.	15	3¼	2 51	10	50	
Curtis & Co	Oak....	11	3¼	2 30	10	50	

The Saws enumerated in the above table were all solid circulars 56 inches in diameter. Several inserted tooth Saws were entered for competition with the following results:

Emerson Ford & Co. placed an inserted tooth Saw, called the "Clipper" tooth, on the mandril, but after cutting ten poplar boards it was withdrawn on account of "heating." The same firm also entered their "Planer" tooth Saw, which on 2¼ inch feed cut sixteen poplar boards 12 feet long, 16x20, in three minutes and seventeen seconds, and on the same feed made eleven cuts, and twelve oak boards 12x16, in two minutes and twenty-seven seconds. The fastest time made with an inserted tooth Saw was accomplished with R. Hoe & Co.'s inserted "bit" tooth, which was placed on the mandril by the patentee, Mr. Miller. This Saw, on 3¼ inch feed, made fifteen cuts in a poplar log 16x20, in two minutes and 45 seconds, and on 2¼ inch feed made eleven cuts in an oak log 12x16 in one minute and fifty-eight seconds. The American Saw Company were prepared to run their improved inserted tooth, but through some unaccountable accident, a right hand Saw was provided, and, as a consequence, it had to be withdrawn. At 4 p. m. on Saturday, the 26th inst., this, the first competitive trial of Circular Saws ever held in this country came to a close, and it is with pleasure that we bear testimony to the fairness and impartiality displayed by the committee and the jurors having the matter in charge. Of the contestants it is proper to say that the utmost harmony and good feeling prevailed from the commencement of the trial to its close. The main object that brought these manufacturers together was to learn, by an experience not to be gained in the workshop, the actual merits of the different styles of teeth and the best gauges for large Saws in general work. The result of the trial is now in the hands of judges who have been selected for their experience in running Saws. The considerations before them may be briefly stated. Economy in time; economy in power; economy in lumber; quality of lumber manufactured. In the table which we have given, the time is official; the amount of steam consumed on each log we were unable to ascertain, and this important item will have great weight in the final verdict. With regard to the quality of lumber manufactured during the trial, there was but one opinion, and that was that the average was very inferior. The sawyers employed were all experts, and none doubted that they taxed all their resources to make their Saws run true, but it is not a simple matter to take a new Saw and a new mill, and, after a few trial cuts, go ahead and race for a prize.

Immediately after the contest, the manufacturers held a meeting, when Mr. E. Andrews offered the following resolution, which was unanimously adopted:

Resolved—That we, the Saw Manufacturers, contestants in this the first trial of Circular Saws, do tender our thanks to Messrs. Lane & Bodley for the use of their Mammoth Circular Saw Mill. We acknowledge in the person of Mr. S. R. Smith a fair and impartial gentleman, who discharged the difficult and delicate duty of running the mill for the different competitors to our entire satisfaction; and we also tender our thanks to Mr. A. G. Harrison for the disinterested and satisfactory manner in which he acted as Setter. To the judges, and all connected with the direction of this trial, we desire to place on record the fullest expression of our confidence in their fairness and impartiality.

Mr. G. W. Hammell, representing the American Saw Company, offered the following resolution, which was adopted:

Resolved—That a vote of thanks be given to Captain Barney, of the Cincinnati Daily *Trade List*, for the impartial reports which he furnished to his paper of the progress of the trial.

The meeting then adjourned.

The following challenge was published in the Cincinnati *Daily Trade List* of 26th instant:

Whereas, In the test of Circular Saws now under way at the Industrial Exposition, we failed to show what our first saw could do through trying to accomplish too much with it, and failed on our second because it was too thin for the extraordinary demand made upon it, being two gauges thinner than any other saw in the house;

We therefore, although conceding that we had a perfectly fair trial, feel dissatisfied with the result, and hereby challenge the firm winning the prize at the present test to a second trial between their saw and one of our make—the saws to be of uniform size and average gauge, cutting the same kind and size of logs, for any consideration they may name. Trial to take place on the same mill upon which the saws are running in the Exposition test.

Respectfully, HOGAN & SOWDEN.

BRITISH IRON MARKET.

(*Specially reported by cable for The Iron Age.*)

WEDNESDAY, Sept. 30, 1874.

Scotch Pig.—Immediately after our last cable report was despatched prices went up, and have since been steadily firm, the market being strong, with a large business doing. The following are makers' prices:

Gartsherrie No. 1	117/6
Coltness No. 1	117/6
Glengarnock No. 1	105/
Eglinton No. 1	94/

Manufactured Iron.—The market is quiet; the demand falling off, with prices weaker, and little business.

Rails.—No change in quotations. The market is dull, demand being small and prices weaker.

IRON.

American Pig.—Although at the present moment there is some little inquiry for American Iron for use during the winter, the sales, as a rule, are small, and do not exert any influence toward advancing the value. Many of the Lehigh Valley furnaces have considerable stock on hand, notably the Allentown Iron Co., who have pursued the policy of running five out of six of their stacks all through the dull season, piling their stock to the amount of perhaps 15,000 tons. On the other hand, the Crane and the Thomas have followed the policy of largely reducing their output, and have thereby reduced their stocks to an amount far below what they carry in ordinary seasons, the Crane Co. having in stock about 1000 tons, and the Thomas Co. perhaps 2000 tons. Under these circumstances the Crane Co. are about blowing in another stack, which will make three out of their six in blast, while the Thomas Co. have four out of eight in operation. It is generally supposed that some of the companies who have been running nearly full will reduce their product before many weeks. The large quantity of Iron in makers' hands appears to hang like a cloud over the market, which fact has a depressing effect, even on those companies that have all along kept well sold up, and influence them to submit to lower prices than they otherwise would. We hear of a sale of 1000 tons No. 1 and 2 of a prominent Lehigh brand, the terms of which were withheld. We quote: No. 1 Foundry, $30; No. 2 Foundry, $28; Gray Forge, $25 @ $27.

Scotch Pig.—Stocks here are now reduced to the lowest ebb, and this fact has had a tendency to cause holders to be a shade firmer in their views, and they are now generally asking $37 for Eglinton, $38 for Carnbroe and $39 @ $40 for Glengarnock; but as sales, as a rule, are limited to five and ten ton lots, it is doubtful if the above figures could be realized on a parcel of any magnitude thrown on the market. The high prices advised from Glasgow still deter importers from operating to any extent.

Bar.—Bars continue in limited request; makers seem fairly firm at 3c., with but little cutting-under. During the week several bridge specifications have been given out, and the Pennsylvania Railroad Company have contracted for 1000 coal cars. These orders, with the advance in the railway shares market, have imparted a somewhat more hopeful tone to the market, with a large margin still remaining for improvement.

Rails.—The market has been quiet the past week in both English and American Rails. We quote at $55 for Iron and $80 @ $85 for Steel American Rails from mills, and $48 @ $50, gold, for Welsh. Some sales have been made on private terms.

Old Rails.—Trade has continued exceedingly slow in Old Rails, and we do not hear of any transactions. Old Ts are nominally held at $32, though it would be difficult to obtain that figure.

Scrap.—We do not hear of any business in Scrap, and the value remains nominal at $33 @ $35 from yard.

METALS.

Copper.—Spot Copper, in any but the Lake companies' hands, has become quite scarce; dealings during the week have thus been restricted, and, inclusive of Copper to arrive, have not exceeded from 200,000 to 300,000 pounds at 21c., on the spot, and 21¾c., futures. The present spot value is 21¼c. @ 21½c., with a still market, to arrive, at 21¾c. @ 22c. We quote Baltimore, spot, 21¼c. Orders are plentiful in the hands of manufacturers, who, in a good many instances, have been compelled to buy stock from each other, in order to fill them with promptness. Hence there is no lack of a demand for Copper from *bona fide* consumers, although the bulk of the past week's purchases came from speculators. The market is a decidedly strong one. As regards the immediate future of the metal in our own market, it will depend on the one hand on the action of the leading companies, as yet keeping out of it, and on the other on the course of Copper in Europe. Telegrams from London have given us news of a steadily advancing market as regards Chili Bars, which stood £81 on Saturday last, and came £81. 10/ yesterday. Mail accounts from London are to hand to-day, and we

clip therefrom the following, dated 19th September: "There has been a very steady business in all descriptions during the week, Chili Bars selling at £78 @ £78. 15/, for ordinary, and £78. 10/ to £79. 10/ for picked and special brands, and the market closes with rather a hardening tendency. Stuff on the spot is scarce, and buyers, in many instances, were compelled to take parcels to arrive, which importers have quitted only at a trifling premium on cash values. The market is now very bare of available metal, and we doubt if extensive purchases could be effected, especially in good ordinary brands, even at our highest list prices. The transactions in Australian sorts during the past week were but small; holders, however, are very firm, and the rise in Chili Bars is likely to strengthen them in their views. English descriptions are steady, and smelters are doing a fair trade, though chiefly in Tough and Select." Greater steadiness is observable in manufactures of Copper. We quote Yellow Metal Bolts, 28c. @ 30c.; New Sheathing Copper, 30c. @ 31c.; Bolts and Braziers, 32c. @ 33c.; and Bronze and Yellow Metal, 22c. @ 23c., net cash.

Tin.—Rather a quiet market has prevailed throughout the week in this metal, owing, to a great extent, to the firmness of holders, especially of Straits Tin, and the moderate supply of English; transactions have thus more exclusively been of a jobbing character, circumscribed in volume. We quote Straits 21¾c., gold; English Refined, 21¾c. @ 21¾c.; L. and F., 21¾c. @ 21¾c.; and Banca, 25c.; all gold. Closing quotations at London, as per cable, 26th instant: English Refined, £98; and do. Common, £97. "SINGAPORE, Sept. 29th, per cable.—Malacca Tin, $24·75 per picul; September shipments to New York and Boston 150 tons." No telegraphic news is to hand, up to the closing hour, from Holland as regards the result of the Dutch government sale of yesterday. Mail accounts from London, dated 19th September, read as follows: "Straits advanced £3 during the week, but the quantity sold at the top figure was not large. The English smelters raised their quotations £2 all round on the 14th instant; the demand since has, however, hardly been so good, and foreign is slightly weaker." Straits at the time was £93. 10/ @ £94, cash, and £92 @ £92. 15/ to arrive. There was a decline of £1 since the 23d Sept., when, by cable, the two descriptions of English stood £99 and £98. Tin Plates in this market have enjoyed a steady demand, a fair jobbing trade having been transacted, sales summing up 2000 boxes, and the market closes firm, as follows: I. C. Charcoal, $9·75 @ $10, gold, per box; I. C. Coke, $7·75 @ $8; Coke Terne, $6·75 @ $7; and Charcoal Terne, $8·75 @ $9; all gold.

Lead.—Government has been selling right along at 6c., gold, while Domestic has been bringing from 6·05c. @ 6·10c., gold, but the dealings are not large, the better part of the fall trade, in Drop Shot for instance, being over, dealers having bought largely thereof while manufacturers were selling at $7, net, now $7·87½, net, the 100 pounds. The months of August and September were thus kept pretty active, but the dealers are now well supplied with that class of manufacture. We may, of course, expect the usual fair amount of activity in manufactures of Lead in October and November, but can look forward to nothing extraordinary. The sales of government and Domestic Lead for the past week have, all told, not exceeded 400 tons. Foreign is quiet, but steady, at 6¾c. @ 6¾c., gold, for Common, and 7c., gold, for Refined. "LONDON, Sept. 19.—There has been a very strong market for this metal, and a further rise has been established. The improvement is owing, perhaps, more to the want of supplies than to any excessive demand. There is no speculation going on at present, but the advance may be taken as purely from legitimate causes. Such being the case, there is every prospect that the rise will not prove of an evanescent nature, but will hold for some time. Some sellers decline making a price for any large quantity for the present, as they cannot undertake to make any fixed deliveries. Spanish continues scarce at £21. 12/6 @ £21. 15/, being the present value. Of manufactures of Lead we quote Bar, Pipe and Sheet, 8¼c., and steady, with a trade discount of 10 per cent. Tin Lined Pipe, as heretofore, 16½c.

Spelter and Zinc.—Spelter remains inactive at 6¾c., currency, Western, at which figure it moves off in moderate lots. The smelters at the West are very much discouraged by the low price which their product commands on this coast, and may find it in their interest to curtail production. Not much has transpired in Foreign, which we quote 6¾c. @ 6¾c., gold, the usual brands, and 6½c., ditto, special Silesian. "LONDON, Sept. 19.—Sellers are very firm, and now ask £23. 12/6 @ £22. 15/ for ordinary Silesian, being a rise of 5/ per ton Vieille Montagne Zinc has advanced £2 per ton." Sheet Zinc at New York has responded to the European improvement, and now commands 8¾c., gold, while Mosselman has been advanced to 9¼c., gold, 4 per cent. off.

Antimony.—The stock is limited, and so is the demand; the few dealings go at 11½c., gold.

OLD METALS, PAPER STOCK, &c.

Business in this market has improved considerably since last week, and a better feeling is apparent among dealers. Hemp and Grass Rope is in good demand. Gunny Bagging is also a little more active, but not sufficiently so to alter prices. Old Metals continue very dull, and are in but little request. Prices are firm, however, and we have nothing new to report in the way of changes in our market quotations. The following are the purchasing prices offered by dealers

Old Metals.—Copper, 15c. @ 16c. per lb.; Yellow Metal, 11c.; Brass, 10c. @ 12c.; Composition, heavy, 13c. @ 14c.; Lead, solid, 5¼c.; Tea Lead, 4c.; Zinc, 4½c. @ 5c.; Pewter, No. 1, 19c.; do., No. 2, 8c. @ 12c.; Spelter, 5c. @ 5½c., Wrought Iron, 1¼c.; Sheet do., ½c.; Cast, do., ½c. @ ¾c.; Machinery, do., ¾c.

Rags, &c.—Canvas, Linen, 5c. @ 5½c.; do. Cotton, No. 1, 6c. @ 6½c.; No. 2, 2½c.; White, No. 1, 6½c.; No. 2, 4c.; Colored, do., 2c. @ 2½c.; Mixed, Woolen, 2c. @ 3c.; Soft, do., 4½c. @ 5c.; Gunny Bagging, 1c.; Jute Butts, 1¾c. @ 2c.; Kentucky Bagging, 3c.; Book Stock, 3c.; Waste Paper and Scraps, 1½c.; Kentucky Bale Rope, 4c.; Oakum Junk, No. 1, 4½ @ 5c.; do. No. 2, 3c.; Tarred Shaking, 1c. @ 1¼c.; Grass Rope, 3c.

IMPORTATIONS.

Of Hardware, Iron, Steel and Metals into the Port of New York, for the week ending September 29, 1874:

Hardware.

Boker Hermann & Co.
Cases, 5
Mdse. pkgs., 10
Beam & Murray,
Mdse. pkgs., 48
Cases, 5
Anvils, 100
Chains, pcs., 2
Bassford E. D.
Casks, 3
Drexel, Morgan & Co.
Cases, 2
Dux Wm. & Co.
Cutlery, cs., 1
Field A. & Co.
Mdse. pkgs., 91
Cases, 10
Packages, 7
Anvils, 125
Freeman W. H.
C. ases, 1
Forme F. & Co.
Cases, 1
Folsom Chas.
Guns, cs., 3
Hilger E. & Sons,
Packages, 4
Hildick A. H.
Cases, 1
Anvils, 12
Chains, cks., 2; pcs., 10
Hayes H. M.
Cases, 2
Harmar Wm. & Co.
Packages, 3
Justice P. S.
Wire rope, coils, 2
Laughland & Co.
Wire, bdls., 7
Lewis & Conger,
Casks, 3
Mills N. & Co.
Packages, 2
Mason John W. & Co.
Wire rope, coils, 3
Moore Henry,
Files, cks., 11
Moore's J. P. Sons,
Arms, cs., 1
Merchants' Dispatch Co.
Packages, 10
Anvils, 12
New York Knife Co.
Anvils, 1
Noyes, White & Co.
Cases, 2
Phelps, Bloom & Brown,
Cases, 2
Page E. & Co.
Wire rods, coils, 587
Quackenbush & Townsend,
Packages, 4
Richards & Boaz,
Guns, cs., 1
Schoverling & Daly,
Arms, cs., 5
Packages, 7
Stratton John F. & Co.
Cases, 10
Schweitzer Mfg. Co.
Mdse. pkgs., 2
Sawyer John,
Wire rope, reels, 9
Swan & Brombacher,
Cases, 1
Seymour W. N.
Casks, 3
Van Wart & McCoy,
Chains, cks., 1
Cases, 5
Tillotson L. G. & Co.
Wire, lots, 722
Windmuller L. & Roelker
Cases, 3
Ward A.
Packages, 6
Wiebusch F.
Cases, 35
Mdse. pkgs., 19
Order.
Wire netting, rolls, 25
Guns, cs., 3
Files, cks., 80
Packages, 233
Chains, cks., 11

Iron.

Bruce & Cook,
Sheet, bdls., 119
Congreve Chas. & Son,
Rails, 370
Drexel, Morgan & Co.
Bars, 500
Hardy A.
Scrap, tons, 53⅝
Henderson Bros.
Pig, tons, 100
Lang W. Bailey & Co.
Bars, 1093
Bundles, 120
Plates, 8
Laughland & Co.
Hay bands, bdls., 1000
Naylor & Co.
Rails, 626
Fish plates, bdls., 985
Bars, 4373
Providence Tool Co.
Bars, 221
Thompson A. A. & Co.
Sheet, bdls., 250
Wheeler E. S. & Co.
Bundles, 2
Order.
Railway bars, 1860
Pig, tons, 230
Sheet, bdls., 754
Hoop, bdls., 229

Steel.

Brown Wm.
Barrels, 35
Cases, 28
Hogan John,
Cases, 22
Naylor & Co.
Bars, cs., 15
Cases, 9
Providence Tool Co.
Cases, 7
Pierson & Co.
Bundles, 98
Cases, 2
Richards & Boaz,
Cases, 64
Casks, 225
Sanderson Geo. & Co.
Casks, 7
Vose, Dinsmore & Co.
Bundles, 57
West, Bradley & Carey,
Wire, bdls., 257
Woodford W. O.
Cases, 64
Order.
Bundles, 465
Bessemer rods, bdls., 178

Metals.

Baring Bros. & Co.
Lead, pigs, 2000
Byrne Joseph,
Tin plates, bxs., 320
Tin ingots, 286
Haxtun B.
Lead, bars, 13,000
Hart Lucius & Co.
Tin ingots, 300; bbls, 5
Naylor & Co.
Tin plates, bxs., 831
Phelps, Dodge & Co.
Zinc, cks., 195
Tin plates, bxs., 9793
Sheet tin, cks., 202
Shepard Sidney & Co.
Tin plates, bxs., 335
Wheeler E. S. & Co.
Tin plates, bxs., 300
Order.
Tin plates, bxs., 6588
Lead, pcs., 833
Spelter, plates, 2479
Copper, bars, 71

COAL.

During the last week there was an improved demand for Anthracite Coal, in consequence of the publication of the increase in prices for October delivery, as announced by the Associated Coal Companies, which we noted in our last report. As this is the last week for September delivery, retail dealers have been laying in more freely. 60,000 tons of Scranton Coal were sold Wednesday morning at the rooms of the Delaware & Lackawanna Company, corner of William street and Exchange Place. The attendance was large and the bidding spirited. The following are the prices, with a comparison of last month's sales:

	Tons.	August.	September.
Steamboat	6,000	$5·12 @ 5·15	$5·17½ @ 5·20
Grate	15,000	5·15 @ 5·20	5·22½ @ 5·27½
Egg	6,000	5·42½ @ 5·45	5·35 @ —
Stove	25,000	5·92½ @ —	6·02½ @ 6·05
Chestnut	8,000	4·75½ @ 4·82½	4·85 @ 5·00

The Pottsville *Miners' Journal* says: "Notwithstanding the dullness of the trade, the Associated Coal Companies are determined to carry out their programme for the year, and have, therefore, advanced the price of Coal 15 cents per ton for October at the shipping ports. As they possess the ability to carry out their programme this year under the most depressing circumstances in the trade, the public may rest assured that their policy will be continued hereafter, and all purchasers of Anthracite Coal can make up their mind to be governed by it, and act accordingly.

The following are the prices of the different Company's Coal, delivered at the various shipping ports near New York, for October delivery:

	L.	Str.	Gr.	Egg	Sto.	Chi
	$	$	$	$	$	$
D. & H. Canal Co.	5 40	5 50	5 60	5 75	6 25	5 20
Pittston	5 25	5 35	5 45	5 60	6 10	5 05
Scranton, Elizabethport	5 25	5 35	5 45	5 60	6 10	5 05
New York Coal Exch'ge	6 20	....	6 15	6 15	6 30	5 35
Old Co. Lehigh	6 35	....	6 30	6 30	6 45	5 50
" Room Run	5 85	....	5 85	5 85	6 20	5 20
" Honey Brook	6 20	....	6 15	6 15	6 30	5 35
Spring Brook, Lehigh	6 20	....	6 15	6 15	6 30	5 35
Wilkesbarre	5 40	5 50	5 60	5 75	6 25	5 20
Plymouth Red Ash	....	....	5 60	5 75	6 35	5 20
Wyoming Coal Association at South Amboy	....	....	....	....	....	....
Susq. Coal Co. "	5 25	5 35	5 45	5 60	6 20	5 05
Hillside Coal and Iron Co.	....	....	....	....	....	....
Bonnell's Wyoming	....	....	5 45	5 70	6 25	5 05
Harleigh	6 05	....	6 00	6 00	6 15	5 20
Duncan's Laurel Dale	6 05	....	6 00	6 00	6 15	5 20
Kingston	5 25	5 35	5 45	5 60	6 10	5 05
Cross Creek	5 80	....	6 10	6 10	6 30	5 10

The inquiry for Bituminous Coal has been on a very moderate scale, and prices are unaltered. We quote as follows: Cumberland, $6·25 @ $6·75; American Gas, $7 @ $7·75; West Virginia, $7·50 @ $8; Pennsylvania and Westmoreland, $7·50 @ $7·75; American Cannel, $13; James River Steam, $6·25.

The demand for foreign is limited, and prices are nominal. Our quotations are: Liverpool House Cannel, $18 @ $19; Liverpool Gas, $11; Newcastle Gas, $7·50 @ $8; Scotch, $9. The total amount of Coal shipped by the Lehigh and Wilkesbarre Coal Company for the week ending Sept. 18th, and for the year commencing January 1st, 1874, is as follows:

	Tons.
From Wilkesbarre Region	33,317
" Lehigh Region	26,685
Total for week	60,077
Previous shipments	1,502,864
Total for year	1,562,941

The Coal transported over the Cumberland Branch Railroad during the week ending September 26, 1874, amounted to 5973 tons, as against 6016 tons shipped in the corresponding period of last year, showing a decrease of 44 tons. Over the Cumberland and Pennsylvania Railroad, for the same period, the shipments were 46,938 tons, against 58,679 tons shipped in 1773, a decrease of 11,741 tons.

PHILADELPHIA.

PHILADELPHIA, Sept. 29, 1874.

There is nothing encouraging to be said of the state of the iron trade, nor is there any better prospect in the outlook. The purchases of Pig Metal are confined to absolute necessities, both for Foundry and Forge grades. The blowing in of a few furnaces, some weeks since, gave rise to the belief among foundry men that production would be materially increased and prices lower; parties placing orders shared this belief and both held off. It is probable a firm advance of a single dollar per ton would have turned the tide and brought out buyers. As it is, nothing of moment is expected until spring, unless some concerted action among furnace owners should entirely suspend production. The example of the cotton and print manufacturers of New England, who have decided to restrict production one-third until their goods can be sold at a profit, might be advantageously followed by the iron trade. Notwithstanding the dullness, there have been some considerable sales of Pig Metal in the last week, but principally of No. 2 Iron, to Pipe works, and generally at low figures. It is generally conceded that Pig Metal is being sold at a loss, and that there is no reason to expect any immediate improvement unless the supply is decreased.

In Manufactured Irons there is a somewhat better feeling. Bars are slightly more sought; some fair orders have been placed with the car works and other consumers. For Sheet and Plate Irons there is a fair demand. Rails are quiet, but relatively the best stock in Manufactured Irons, while old material of every kind is sluggish and weaker in price. Charcoal Pig Metal is in moderate demand, and sells slowly at prices which offers no encouragement to the trade for further production. The Car Wheel Foundries have suffered with the Rail Mills by the depression of the railway interest, and Cold Blast Wheel Irons are not sought save at prices which appear absurd to makers. The following are the nominal prices here, though these are materially shaded, according to the necessities of the seller:

PIG METAL.—No. 1 Foundry, $30 to $31; No. 2, $26 to $28; Gray Forge, $26 to $27; White and Mottled, $22 to $24.

CHARCOAL PIG METAL.—Cold Blast Car Wheel, $40; Hot Blast do., $36 to $37; with sales at these rates.

BARS—3 cents per lb.

OLD RAILS—$31 to $32.

SCRAP—$33 to $34.

Among the sales are to be noted those of some 6000 tons Foundry, Forge and White, forming part of a lot of 13,000 tons sold this month principally to Pipe works and on private terms, ranging probably about quotations; also 600 tons White at $23 here, and 600 tons same at $23. Sales of 1500 tons Rails at $63 at tide water, time and interest; 600 tons 56's at $57 at mill; 7500 tons Rails to Central Pacific Railroad on private terms, divided between the Delaware and Lackawanna and Allentown mills; 1000 tons to Jersey City and Albany Railroad, on private terms. *Old Rails*—1000 tons here at equal to $31·50, and 1500 tons foreign in New York on private terms. Sales of 180 tons Hot Blast Charcoal at $36, and small lots of Cold Blast Wheel Iron at $40.

PITTSBURGH.

PITTSBURGH, Sept. 29, 1874.

PIG IRON.—There is nothing new to record in this important staple. Business continues dull, the demand is still restricted wholly to supplying immediate wants, while as regards prices there has been no quotable change for several weeks. Producers are hopeful that there will soon be a change for the better, and it is claimed by some that the raw article is cheaper now, relatively, than the product; but it must be conceded that the outlook at this writing is not very encouraging. The most encouraging feature to notice is that the production has been very much curtailed, so much so that it is thought there is not as much being produced in the West as is being consumed; but then the supply is still considerably in excess of the demand, notwithstanding. It appears to be generally conceded, however, that prices have touched hard pan; even consumers, generally, do not anticipate any further decline, but at the same time they are refusing to buy, except for immediate wants, which would indicate that they do not expect any immediate advance. Good standard Forge Irons may be fairly quoted at $26·50, 4 mos.; Foundry Irons continue very dull, and sales of No. 1 have been made as low as $28, 4 mos.; No. 2 quotable at $26 to $27. There is but little doing in Charcoal Irons or Blooms.

SCRAP IRON.—Dealers continue to report the Scrap market as being very dull and unsatisfactory, instead of improving, as it was hoped it would as soon as the fall trade set in. It appears to be getting worse. There is little or no inquiry, and as stocks are accumulating, and there seems to be but little prospect of an early improvement in the demand, dealers are indifferent about buying.

MANUFACTURED IRON.—Trade continues to keep up pretty well, and while orders are not coming forward as freely as they did prior to the recent advance, the mills appear to have about all they can do, the best evidence of which is they are nearly all in operation, many of them working double turn. The most encouraging feature to notice is that rates are pretty generally adhered to. There appears to be an absence of cutting, and, furthermore, current prices afford a slight margin for profit.

NAILS.—The Nail trade continues unsatisfactory; in addition to a limited demand, current rates—$3·35, 60 days—afford little or no margin for profit; but, then, it is hoped that there will soon be a change for the better. However, there will have to be an improvement in the demand before any attempt will be made to advance prices, and, as might be expected, manufacturers are not very anxious for orders at prevailing rates.

STEEL.—The Steel mills are generally reported busy; some of them report being sold ahead of their production from 30 to 60 days, but it is complained that prices have been run down very low, lower than there was any necessity for, and that "cutting" rates has been too much indulged in. There has been no change made in the card for some time, but it is treated as a dead letter.

RAIN AT LAST.—There has been a continuous rain during the past 48 hours, and it cannot but have a very beneficial influence on business, as it will start up the fall crops, revive the pastures, and, what is equally as important, will cause an immediate resumption of river navigation.

The Pittsburgh *Commercial* of Sept. 26, says: By reference to sales reported below it will be seen that there are no new features in the iron market this week, and that the prices remain about the same as at date of last report. We are reported the following sales:

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORE.

100 tons white and mottled	$25·00—4 mos.
100 tons gray forge	26·50—4 mos.
100 tons white and mottled	24·00—4 mos.
100 tons close gray	26·00—4 mos.
100 tons white and mottled, neutral forge	p. t.
40 tons No. 1 foundry	28·00—4 mos.
10 tons No. 2 foundry	29·00—4 mos.

CONNELLSVILLE COKE.

150 tons gray forge	$25·50—cash.
140 tons white and mottled mixed	24·00—cash.
100 tons gray forge	16·50—4 mos.
10 tons No. 2 foundry	27·50—4 mos.
10 tons No. 1 foundry	29·00—4 mos.

HANGING ROCK CHARCOAL.

70 tons cold blast	$33·00—4 mos.
23 tons hot blast foundry No. 1	36·00 @ 37·00—4 mos.
25 tons hot blast mill	31·00—4 mos.

ALLEGHENY COKE.

100 tons Red Bank	$28·00—4 mos.

BLOOMS.

100 tons No. 1 Juniata	$35·00—5 mos.

CINCINNATI.

Messrs. ADDY, HULL & CO., under date of Sept. 28th, write us as follows; There has been no large increase in the demand during the past week; still, the better feeling noted in our last has not lost ground. The indications appear good for a substantial demand the coming six months. Prices, however, have not yet strengthened, stocks being still large, and in many directions pressing hard on the market:

HOT BLAST CHARCOAL.

Hanging Rock No. 1	$34·00 @ 34·00—4 mos.
" " No. 2	30·00 @ 32·00—4 mos.
" " Forge	27·00 @ 29·00—4 mos.
Tennessee No. 1	32·00 @ 33·00—4 mos.
" Forge	27·00 @ 29·00—4 mos.
Alabama No. 1	31·00 @ 32·00—4 mos.
Missouri No. 1	33·00 @ 34·00—4 mos.
" No. 2	30·00 @ 32·00—4 mos.

HOT BLAST STONE COAL.

Missouri No. 1	$32·00 @ 33·00—4 mos.
" Forge	27·00 @ 29·00—4 mos.
Ohio No. 1	30·00 @ 31·00—4 mos.
" Forge	27·00 @ 28·00—4 mos.
Scotch Pig, No. 1	..

COLD BLAST CHARCOAL.

Hanging Rock Car Wheel	$50·00 @ 55·00—4 mos
Missouri " "	48·00 @ 52·00—4 mos.
Kentucky " "	50·00 @ 55·00—4 mos.
Tennessee " "	48·00 @ 52·00—4 mos.
Georgia " "	48·00 @ 52·00—4 mos.
Alabama " "	48·00 @ 52·00—4 mos.
Machinery and Forge	45·00 @ 48·00—4 mos
Blooms	90·00 @ 95·00—4 mos.

LOUISVILLE.

Mr. GEO. H. HULL, under date of Sept. 28, writes us as follows: The market is dull and lower for nearly all grades of Iron. Quotations are revised as below. The usual time, 4 mos., is allowed on the quotations below:

HOT BLAST CHARCOAL.

No. 1 F'dry, from Hanging Rock Ores	$30·00 @ 28·00
" 2 " " " "	28·00 @ 29·00
" 1 Forge, " " "	26·00 @ 27·00
" 1 F'dry, from Tennessee Ores	28·00 @ 30·00
" 2 " " "	27·00 @ 28·00
" 1 Forge, " "	26·00 @ 27·00
" 1 F'dry, from Alabama Ores	28·00 @ 30·00
" 1 " " Iron Mountain Ores	33·00 @ 34·00

HOT BLAST STONE COAL.

No. 1 F dry, from Missouri Ores	30·00 @ 33·00
" 2 " " "	28·00 @ 29·00
" 1 Forge, " "	28·00 @ 30·00

COLD BLAST CHARCOAL.

Car Wheel from Hanging Rock Ores	50·00 @ 54·00
" " Tennessee Ores	45·00 @ 46·00
" " Alabama Ores	48·00 @ 50·00
" " Georgia Ores	48·00 @ 50·00
" " Missouri Ores	45·00 @ 46·00
" " Kentucky	45·00 @ 50·00

CLEVELAND.

Messrs. READ & DICKEY, Iron Brokers, under date of September 28, write us as follows:

PIG IRON.—The market for the past week presents no new features, the general complaint of dullness and inactivity being universal. Mills still continue to buy the usual quantities as their wants dictate, but the absence of any speculative movement, coupled with the dullness in Foundry and Car Wheel demands, is severely felt. A very large quantity of Charcoal Iron is at present stored here in warehouse—more, perhaps, than at any previous time in the history of the trade, and as it is used almost solely either for Foundry, Bessemer or Malleable purposes, the demand for it is very light, and the prices realized are but little advanced over those obtained for the same grades of good Bituminous Irons. For mill purposes Charcoal Iron will bring at present no advance over a really first-class Coal or Coke Smelted Iron, while for other purposes users will pay but a slight advance. To persons who want or will want Charcoal Iron, we would say that the present is the time to buy and this the place, for it is to be expected that when navigation closes the price will improve, and it is also generally understood that the present winter will be one of great inactivity among Charcoal furnaces, as their ore and charcoal are better property to hold than to dispose of at current rates for metal. It must also be borne in mind that the production of Charcoal Pig is quite limited, and that with the revival of the Bessemer trade present stocks would be almost immediately swept off the market. We reproduce quotations of last week, which are in the main nominal:

CHARCOAL PIG IRON FROM L. S. ORE.

Nos. 1 and 2 Foundry	$33·00—4 m.
Nos. 3 and 4 Car Wheel	34·00—4 m.
Nos. 5 and 6	35·00—4 m.
Bessemer Metal, Charcoal	32·00—4 m.
Bessemer Metal, Bituminous	28·00—4 m.

BITUMINOUS PIG IRON FROM L. S. ORE.

No. 1 Foundry	$29·00—4 m.
No. 2 Foundry	27·00—4 m.
No. 1 Gray Forge Red Short	27·00—4 m.
No. 2 Gray Forge	26·00—4 m.
White and Mottled	24·00—4 m.

PIG IRON FROM BLACK BAND ORES.

Massillon No. 1	$33·00—4 m.
Massillon No. 2	31·00—4 m.
"New Gartsherrie" No. 2	33·00—4 m.
Muck Bar	$45·00—60 days.

MANUFACTURED IRON.—In Bars the trade is not at all satisfactory the amount of business being done is very small, and all new orders offering are for "sorting up lots." A majority of the mills are still running on orders previously booked, and as yet there is little pressure to sell at any but fixed rates, but the fact cannot be longer disguised that the fall trade is a disappointment, and is not likely to improve; in fact, the demand for Iron was greater in July than at any time since. The only advantage which the advance has brought has been reaped by the merchants and dealers, as it enabled them to rearrange their prices on a definite basis, a condition of trade much to be desired, and a vast improvement on that which previously obtained. On special Irons, as Hoops, Wire, Rods, &c., there is a better trade and more hopeful feeling, and in general the mills making such are very busy. Some Rail mills are commencing to show signs of activity after their long enforced rest. There will be several Rail contracts given out soon, as the roads can no longer defer their purchases, while recently there has been some prospect of a partial revival of the car builders' trade. Of course, no one expects that the railroads are all coming into the market, nor that any will buy more than their necessities compel; but stocks of all grades of Iron are now so light the country over, that even a very small slice of railroad trade may have a very considerable influence on prices of Pig, and, consequently, on all grades of the manufactured article.

SHEET IRON is in fair demand at stated quotations. The mills are all full of work, this being their busiest season.

NAILS remain as indicated in our last week's advices. The demand is active, but prices are not remunerative to manufacturers, who are agitating an advance. A recent drop among the Nail cutters in Canada has for the present shut out American Nails, which had begun to make some inroads on their trade. American Nails will always have the preference there at anything like equal prices, but 15 cents per keg is too much difference. Quotations are as follows for car lots from store:

	60 days.
Bar, Band and Hoop Iron	$2·80
Sheet Iron, No 24	4·80
Nails, 10d. to 60d	3·50
Ship Spikes, ¾ and larger	4·20

BALTIMORE.

Messrs. WYETH & BROTHER, Iron and Steel merchants, South Charles and Lombard streets, report us the following prices under date of Sept. 29: We have little to note since our report of last week, and which very fairly applies to the present condition of trade since that date. Trade rules quiet and list remains unchanged.

AMERICAN REFINED BAR IRON.

1 to 6 wide by ¾ to 1 thick	2·9 to 3·1 cts. per lb.
1 to 4½ wide by 1¾ to 2 thick	
Round and square, ordinary sizes, from ¾ to 2 inclusive	2 9-10 to 3 1-10c. "
Hoop Iron, 1¾ wide and upward	4¾c. to 5c. "
Band Iron, from 1¾ to 4 in. wide	4 to 4¼c. "
Horse Shoe Iron ¾ to 1 wide by ¾ to ¾ thick	4¼c. to 5c. "
Norway Nail Rods	7¾c. to 8¼c. "
Black Diamond Cast Steel, Flats, Squares and Octagon, ordinary sizes	16¾c. "
Machinery Steel	11¾c. "
Cast Spring Steel	11c. "
Homogeneous Steel Plate	13c. "
Perkins' Horse Shoes, per keg of 100 lbs	$5·87½
Mule Shoes " "	6·87½

Common Horse Nails, from 14c. to 18c. per pound.

	10	9	8	7	6	
Putnam Horse Nails	23	24	25	26	28c.	per lb.
	10	9	8	7	6	
Globe Horse Nails	23	24	25	26	28c.	per lb.

R. R. Spikes 5¾ by 9-16 at 3¾c to 4c. per lb.

BOSTON.

BOSTON, Sept. 26.—*Pig* is lifeless; not a ripple of business has been visible. The teamsters of Oliver, Broad, Custom House and Commercial streets report an absolute absence of orders all the week. There have been a few foundrymen in from the near-by localities, but they refuse to listen to any offers or suggestions of bargains. As an instance we note that 1500 tons now on wharf were offered four weeks ago at $27, and $25 was bid, and now this week it sought a buyer from Bridgewater at $24 and was refused. This arises not out of the inferiority of the goods, but from a want of confidence in the market and the unusual absence of orders. *Bar* is flat. The week past has been unmistakably quiet, and while dealers have been canvassing for orders at less than 3c. on picayune lots, their luck has been small indeed. We note one fact in illustration of the anxiety of the market. An outfit of extra heavy Axles for six wagons has been placed at under 3c. against the quoted bottom price of 11c. The trade are busy with the discussions of very many just such transactions, and yet some ask us to "quote a buoyant feeling." *Steel* is dull. A large Worcester machinist tells us he was offered one of the best brands Pittsburgh machinery Steel at 9½c., against 11c., his best opportunity previously, and yet he did not purchase, since his shop, as well as his neighbors, was at a stand. We quote yard lots of American Pig Iron at $36 to $39 per ton, including No. 2 extra at $34 to $36, and No. 1 at $38. We quote Eglinton at $38, Coltness and Gartsherrie at $45 to $46, Charcoal at $45 to $55. *Copper* is firm but very dull. We quote Ingot at 21c., cash. Sheathing, 33c.; Yellow Metal, 23c. *Lead* is firm and quiet. We quote Sheet and Pipe 7¾c., currency; Tin Lined Pipe, 16½c.; Bar Lead, 7¾c., less usual trade discount; Pig, 7½c. for Foreign, gold, and 6c., currency, for Domestic. *Spelter* is easy. American, 6¾c., currency. *Tin* is dull. Straits, 22½c.; Banca at 25¾c., gold, 30 days; Refined English, 22c., gold; Charcoal I. C., $11·25 @ $12·50; Coke, $9 to $10; and Terne at $8·50 to $12·50 per box, currency.—*Com. Bulletin.*

FOREIGN.

FRANCE.

(Moniteur des Interets Materiels.)

PARIS, Sept. 12, 1874.—*Metals.*—*Copper.*—The Copper market, since we last reported, has taken a more favorable turn, and although no great improvement has as yet been established in the various European

markets, the upward movement seems to have been well started, inasmuch as consumers begin to buy freely, and thus lay the foundation for a more durable amelioration than we have witnessed for some time past. There has not been done a great deal here, but we are steady at the following quotations: Chili, in bars, 208·75 francs; Common do., 198·75; Ingots, 217·50; English Tough, 210; and pure Corocoro Ore, 200. Nothing new has transpired at Havre, first brands still being quoted 207·50 to 210; good current do., 205; and Lota and Urmeneta, 202·50 to 203. At Marseilles but small transactions are reported for consumption at unaltered prices. *Tin.*—It will be remembered that while Holland last week rather showed an improved state of affairs in this metal, the English markets remained in a feeble position. We now hear of a better feeling everywhere, and the dealings as well as the prices obtained are of a satisfactory nature. Holland continues in a firm attitude; holders show no anxiety to realize, there being but a comparatively moderate stock of Banca, and the business done is restricted in volume merely by their extreme firmness. We have risen in value here, Banca, deliverable at either Paris or Havre, being 255 francs; Straits, 244·50; and English, deliverable at Rouen, 245. There is an improvement, too, at Marseilles, but it is confined to Banca, which has risen 5 francs, now being quoted 260. English and French there remain unaltered at nominally 265. *Lead* has been fully sustained, both in England and with ourselves. We are unaltered here at 53 francs the 100 kilos, while Marseilles is, as heretofore quiet at 48¾ to 49. The stock of *Spelter* being much reduced in England and elsewhere, great firmness prevails, business being kept within a moderate compass by the scarcity of the metal, a though during the present week there has nevertheless been a fair amount of activity wherever it could be laid hold of. We have been on the rise here at 53·50 francs for Silesian, deliverable at Havre; other good brands there, 57; here, 58. Little transpiring at Marseilles as unchanged prices. *Iron*—The news to hand from the various French districts unanimously speaks of a cheerful outlook. Large commands begin to make their appearance, inaugurating well the fall and winter campaign. Coke Pig is firmly sustained at 240 francs. The market is getting stiffer at this figure, and we seem to be on the eve of a rise. Nail Rods are worth 300 francs, and Chain di·to 260 to 280. There has been a rise of between 5 and 10 francs in Sheet Iron for bunding purposes, while Cylinders for Axles have brought as much as 310 to 320 francs. Our foundries have a fair share of work on hand. Pig Iron has not participated in the upward turn, but the tendency therein is also a better one, in sympathy with the general drift of Iron. In the Compte select Pig Iron commands 185 francs, while Wrought Iron at the North is currently selling at 230 to 240 francs. The productions of Alsace-Lorraine are now competing in our country with goods from the Meurthe and Moselle. The government dues thereon are but 2½ to 3 francs, and adding thereto freight, &c., Pig Iron from Lorraine, costing at the places of production 72·50 to 75 francs, can be sold in France at 80 to 82·50. *Coal* remains in a languishing condition, so far as its sale for industrial purposes is concerned. It is different as regards the supplying of domestic requirements, this being the season for laying in a private stock of Coal. Prices have, on the whole, been well sustained. Production at the North and in the Pas de Calais has been lessened and stocks are diminishing. Our Coal mines seek an excuse for the slacke ing of operations in the alleged scarcity of hands, but the fact is that they are prospecting for new beds of Coal, and neglect working the old ones. The consequence will be that toward the cold season we shall suddenly drift into high prices. The Loire region is differently situated, for, although production has been checked, the demand remains slack and stocks show no serious decline. This is due to the little doing for industrial purposes in our immediate neighborhood.

BELGIUM.

(Le Commerce.)

BRUSSELS, Sept. 12, 1874.—*Iron*—There is a good deal of irregularity in the demand, for, while Sheet Iron manufacturers and Pig Iron makers of the better qualities tell us that they have their hands full at remunerative rates, we hear from machinists that they are bare of work. The owners of forges, on the other hand, and especially Rail makers, are carrying on a war of competition among themselves, running down the price of their manufacture at a fearful rate. Viewing matters from a general point of view, however, we plainly discern an improvement in the Iron situation in Belgium since the summer time; we are evidently on the eve of a more prosperous era. The manufacturers of Finished Iron are getting on well, and there is a more healthy outlook in Pig Iron. The only thing worthy of special notice is the embarrassment in which our government is placed with respect to its awards upon tenders in the matter of Rails, brought about by the competition of our German neighbors at Ruhrort. The programme seems to be to replace a large portion of Iron Rails used by the State by Steel ones; to use, in fact, as little Iron as possible, and give the three leading domestic establishments 7000 tons each, and the Ruhrort people 3000, all told, to furnish under the awards. A great effort will now be made by the Iron Rail works to keep their ground against Steel Rails by an important reduction in the price of their manufacture. We hear of prices remarkably low at which these Iron Rail people seem willing to sell in future, but our government has recently made such bad experience in the continued adoption of Iron Rails, that we are afraid extreme cheapness will not bring them into extensive use again on Belgian government railroad lines. We hear the Seraing Works got an order for 10,000 tons Steel Rails. *Coal.*—The market is quiet, and although by water a good deal is still being shipped, business, on the whole, is restricted, and if prices are sustained it is due to decreased stocks.

GERMANY.

(Eisenhalle.)

HAMBURG, September 12, 1874.—*Copper.*—The general appearance of the Copper trade in Germany is a decidedly improved one, although the volume of business thus far transacted is not an extensive one. Consumption, as well as speculation, now appears in the market with a better will, and the consequence is that prices continue to stiffen. Berlin is looking up on the basis of 28¾ to 29¼ thalers, good qualities, English and Australian. Hamburg is flooded just now with American Copper, mostly from the Lake Superior region, which is being offered at 87½ marks, while Drontheim still commands 84 to 89. *Tin.*—The Berlin market is firm, Banca there 34¼ to 35 thalers; English, 33 to 34¼. Nothing is transpiring here. *Lead.*—The German markets are, on the whole, supported with the exception of Berlin, where there is greater weakness at 7¼ to 7¾. Fort Arnowitz, Hartz and Saxonian; Stett n is steady at 7¼ to 7¾ thalers the 50 kilos., Spanish, and 7¾, German. We are devoid of dealings here, and remain unaltered at the following quotations: German, 23·50 to 24 marks; English, 23·50; and Spanish, 25. *Spelter.*—A continued favorable tendency characterizes the German markets. Berlin quotes Silesian 7¾ to 8 thalers the 50 kilos. Breslau is holding out for a high range, and quotes 6¾ thalers. A sale has been effected here of 500 quintals at 22·50 marks on the spot.

HOLLAND.

(Koch & Vlierboom.)

ROTTERDAM, Sept. 8, 1874.—*Tin* is very quiet; Banca, spot, has been done at 57 to 57¾, delivery from September auction at 56, and Billiton, October 6, delivery at 54½ guilders the 50 kilos. P. S.—15th.—A firmer feeling has developed during the week; Banca, spot, has been done at 57¾ to 58¼, futures from the coming auction of September 29th at 56¼ to 57¾, and Billiton, landing, at 55¾. The metal calling special attention at this juncture, we beg to subjoin the prices at the beginning of every month since the termination of the American war:

	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874
Jan. 1	56	67⅜	50⅜	53	65	65	77	87⅛	85⅛	70
Feb..	57⅛	65	52¼	51⅛	67⅜	64⅛	78	86	87⅜	70
Mar..	57⅛	53½	51⅜	54	78	70	77⅜	85	84	62
April.	57	50	54	54	78¾	75⅛	76½	93	87	51
May..	60	47¾	52¼	56	80	74⅜	76⅛	96	84	57
June.	56	45	53	54⅜	84	78⅜	78	95⅛	80	58⅜
July..	56	45⅜	52¼	54⅜	79	78⅜	79¼	94⅛	83⅛	61
Aug..	55⅜	47	53	55	79⅛	69	80⅜	96	79⅜	56⅛
Sept..	54⅛	48	55	54⅛	79⅛	75	80	93⅜	79	57
Oct...	55⅛	46	55	57⅛	76⅛	74⅜	80⅜	94⅜	74⅛	
Nov..	58	46¾	55	59⅜	72	73⅛	81⅛	92	72⅛	
Dec..	58	48	54¾	59⅜	67⅛	73⅛	88	87	67⅛	

EAST INDIES.

(Aitken, Spence & Co.)

COLOMBO, Ceylon, August 24, 1874.—*Plumbago.*—Small orders for good Lump and Dust are being executed for the United States, but the market continues very inanimate, at prices nominally as last quoted. The Dorothy is slowly taking in her cargo. Difficulty in procuring supplies will prevent her sailing before the early part of next month. Exchange has risen during the fortnight; we quote Commercial 1/10¾ to 1/10¾. Plumbago closes quiet as follows: Lump, 33/ per ton, free on board, with commission and exchange at par; Chip, 190/6; and Dust, 115/6, all with a 75 freight per ton to New York to be added. Shipments since October 1st to the United States: 31,410 cwts, against last year 100,741; to all quarters, including the foregoing, 144,463, of which 110,517 to the United Kingdom.

(Dummler & Co.)

BATAVIA, Java, August 11, 1874.—*Billiton Tin.*—The government sale yesterday resulted in an average price of 60·34 guilders per picul, 15,200 slabs being sold, weighing 8049 piculs.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

SHEFFIELD, Eng., Sept. 14, 1874.

THE STATE OF TRADE

has not materially altered since the time of my last writing, but I think we may permit ourselves to conclude that a general improvement is manifesting itself in many branches of the iron trade proper. The renewal of activity which is thus observable is not, in some instances, very marked, but in others (such as the rail trade) it is very pronounced, and has led to a considerable augmentation of briskness at the mills in South Wales, Sheffield, South Yorkshire and elsewhere. Not that we are to wildly suppose, on such slight premises, that there is about to be a great rush of orders, or an immense influx of commissions from some quarter at present but vaguely dreamed of—a peep below the surface (to be obtained by a somewhat rude probing of current statements) forbidding any such conclusion. The fact appears to be that owing to the fast approaching close of the Russian and Swedish shipping season, merchants are giving out orders so as to make up consignments as early as they can, seeing that the Baltic may be expected to become blocked with ice by the last week in October. The Board of Trade returns show how good a customer Sweden at present is for rails, &c. But, further, lower figures have attracted good orders for rails on Australian, New Zealand, Indian and Italian account, and there are numerous indents for hardware from some of our larger colonies, as well as from Northern Europe. These several causes combined have raised the market out of its previous lethargic state, but I think we shall do wisely not to accept this sudden spurt as an accurate criterion of the present, or as any sure guide to the future, but should rather await the course to be taken a month hence and the then condition of things.

THE SCOTCH PIG IRON MARKET.

Since I last wrote the Scotch pig iron market has been clearly firmer, so much so in fact that an advance of about 1/6 per ton has been established in some brands of makers' iron. Shipments for last week, as you will observe, are somewhat lower than the corresponding week of last year. Warrants varied during the latter part of last week from 82/ to 84/6, but are now fairly firm at 83/6, with a disposition on the part of holders to demand sixpence more.

Messrs. James Watson & Co. (Glasgow, September 11th), report as under: We have to report a firmer market for Scotch pig iron during the week, warrants fluctuating between 81/3, 84/6 and 83/, closing this afternoon at 83/3, cash. Shipments last week were 9483 tons against 10,639 tons in the corresponding week of 1873:

	No. 1.	No. 3.
G. M. B., at Glasgow	87/6	78/
Gartsherrie, "	108/6	88/
Coltness, "	108/6	86/
Summerlee, "	101/	81/
Langloan, "	106/	82/6
Carnbroe, "	92/	80/
Calder, at Port Dundas	108 6	81/
Glengarnock, at Ardrossan	98/	83/
Eglinton, "	87/6	78/
Dalmellington, "	87 6	77/
Shotts, at Leith	103 6	86/
Kinneil, at Bo'ness	90/	80/

Messrs. Wm. Colvin & Co. (Glasgow, Sept. 15th), say: The warrant market was strong during the latter part of last week, and business was done from 82/9 to 84/ for prompt cash. Yesterday the opening price was 83/6, but a disposition to sell was manifested, and transactions took place down to 83/, closing sellers. To-day the first price was 81/, and after a good many lots had changed hands at that figure, buyers became more eager, and as high as 81/9 was paid, closing with buyers at that price and sellers at 82/. There is very little change to report in the prices of shipping iron. We quote:

	Deliverable alongside. No. 1.	No. 3.
G. M. B., at Glasgow	87/6	76/6 to 77/6
Gartsherrie, "	108/6	84/
Coltness, "	108/6	85/
Summerlee, "	100/	80/
Carnbroe, "	92/	81/6
Monkland, "	90/	77/6
Clyde, "	90/	77/6
Govan, at Broomielaw	87/6	77/6
Langloan, at Port Dundas	105/	83/
Calder, "	110/	81/6
Glengarnock, at Ardrossan	97/	82/
Eglinton, "	86/6	76/
Dalmellington, "	87/6	76/
Carron, at Grangemouth, selected	100/	....
Shotts, at Leith	103/6	85/
Kinneil, at Bo'ness	90/	80/
Bar Iron	£10	
Nail Rods	10	

SHIPMENTS.

Week ending Sept. 13, 1873	Tons,	11,477
" Sept. 12, 1874	"	11,497
Increase	"	20
Total decrease since Dec. 25, 1873	"	151,552

The prices current of Messrs. John E. Swan & Bro. (Limited), same place and date, give these figures:

Glasgow Brands.	Furnaces B'w'ng, 110	Furnaces Out 46.	Furnaces Built, 156.	Prices. No. 1.	No. 3.	No. 4
Gartsherrie	10	6	16	107/6	84/	..
Coltness	10	2	12	107/6	84/	..
Summerlee	5	3	8	100/	80/	..
Langloan	7	1	8	105/	83/6	..
Govan	4	1	5	87/6	77/6	..
Calder	6	2	8	*107/6	82/	..
Shotts (Bess'mer)	5	2	7	95/	90/	..
Shotts (Ordinary)				102/6	85/	..
Carnbroe	4	2	6	92/	81/6	..
Wishaw	2	1	3	...	...	..
Monkland	5	4	9	91/	78/	..
Chap lhall				...	...	..
Clyde	4	2	6	88/	77/6	..
Quarter-Clyde	4	0	4	83/	77/6	..

*f. o. b. Glasgow, 1/ per ton, extra.

Glasgow Warrants, 3-5, No. 1; 2-5, No. 3, g. m. b. 83/3.

WEST COAST BRANDS—*f. o. b. Ardrossan.*

Glengarnock	7	2	9	97/	83/	82/
Ardeer	4	1	5			
Eglinton (Brand'd)	6	2	8			
Eglinton (Eglint'n)	4	0	4	86/	76/	77/
Muirkirk (Brand'd)	3	0	3			
Portland (Eglint'n)	3	3	6			
Dalmellington	6	2	8	87/	76/	73/

EAST COAST BRANDS—*f. o. b. in the Forth.*

Kinneil	3	1	4	90/	80/	75/
Almond	2	1	3	90/	..	..
Carron (Select'd)	4	2	6	100/	..	..
Carron (Ordn'y)				90/	..	..
Lochgelly	2	2	4	87/6	82/6	72/6
Lumphinnans	0	2	2	87/6	77/6	70/
Bridgeness	0	2	2	..	..	..

THE NORTH OF ENGLAND,

by which I am to be understood to refer to the Cleveland, Durham and other Northern districts, is again greatly disturbed by the near prospect of a large strike amongst the Durham miners. You may possibly recollect that earlier in the year some 60,000 miners went out for a week or two in opposition to a reduction of ten per cent—which they ultimately had to accept. A week or two back the owners gave notice of a further drop of 20 per cent. which has made the men very wroth. They manifest every possible sign of vigorous antagonism to the measure, and declare they are determined to fight the question out. An immediate strike on a great scale is therefore looked for. Should it occur the ironworks of Cleveland, Durham and, to a certain extent, Cumberland will be laid idle, and some fifty thousand iron workers thrown out of employment. The coal owners appear to view the possible result of the attempt with much equanimity and indifference, having put forth a statement that they have coal enough on hand to lay by the pits for three months if necessary. In consequence of this threatening matter coal is dearer to the extent of about 1/ to 2/ per ton in several Northern colliery localities.

TRADES OF SHEFFIELD.

The improvement in trade alluded to in my last communication is still being felt, and its effects are becoming more clearly apparent in several branches of the iron trade proper.

Holders of Swedish iron here are inclined to insist upon somewhat higher figures, stocks being very low at the Swedish ports, partly owing to the fact that last winter was so mild that less iron than usual was produced, charcoal being difficult to get up to the smelting works. Bars are £17 to £19, and 3 in. by ¼ in. and ⅝ in. £16. 15/ to £17 per ton. Russian brands have not materially altered in price. British hematite ores of good repute have advanced about 1/ to 1/6 per ton, but several well known qualities are only on sale at special figures in each particular instance. The Spanish civil war still operates unfavorably on the working of the Bilbao mines; consequently experiments are being made with ores from Algiers, Elba and the Island of Seriphos, in the Grecian Archipelago.

Bessemer and ordinary hematite pig iron from the Cumberland and Whitehaven districts do not just now vary much in price. Maryport figures are these: Hematite, Nos. 1, 2 and 3, 95/; No. 4, 90/; No. 5, M and W, 90/. Bessemer, No. 1, 100/; No. 2, 97/6; and No. 3, 95/ per ton, with the customary allowance for cash. Millom Bessemer, No. 1, 1· 95/; No. 2, 92/6; and No. 3, 90/. Ordinary, No. 3, 90/; No. 4, 87/6; No. 5, 87/6; M and W, 105/ per ton, at the works, on four months' terms, or the usual discount for prompt cash.

It has become known that in a recent competition for fourteen lots of Vignoles rails in Bessemer, Martin or Siemens steel (each lot being of 500 tons), a leading local firm was much underquoted by several German and Belgian houses. The precise tenders were—the Rhine Steel Company (Ruhrot), 259f. 48c. per ton; John Cockerill & Co., 270f. to 280f.; the Osnabruck Company, 295f. to 302f. 90c.; the Glasgow Steel Company (per Mr. W. H Scott), 296f. 79c.; Messrs. Charles Cammell & Co., Sheffield, 298f. 90c.; and Messrs. Schneider & Co. (Creusot), 305f. In another competition for twenty lots of 500 tons each of iron Vignoles rails, the Acoz Forges Company made the lowest offer of 222f. 47c. and 222f. 49c. per ton. Krupp has also carried off a recent order for cast steel axles, puddled steel tires and some Bessemer steel tires. The figures show pretty plainly that we are still a good deal over-weighted in many respects, despite the recent drop in the price of Bessemer steel and other materials.

The usual monthly returns of the Board of Trade for August show a further diminution in the amount and value of our exports. The total depreciation is about 10 per cent., but iron and steel fell off 14 per cent., the precise values in that respect being $2,620,635 this year, as compared with $3,042,820 in August, 1873. The falling off in railroad iron is also 14 per cent., mainly owing to the absence of Russian orders; but it is worth noting that Australia again stands out as one of our heaviest purchasers of this class of articles. Common wire has been in better request, but the exports of telegraphic wire have fallen off considerably, although the total for the eight months of the year is largely ahead of last year. Hardware and cutlery, which are placed under one head, fell off £30,719 in value, as, indeed, the ratio has been throughout the whole of this year. Plated wares show to a fair average advantage. Of cutlery I cannot report any single item at once interesting and important. I do know that even houses of Rodgers & Sons' status are comparatively idle, and that they are now doing less business than they have done for many years—mainly owing to the continued defection of the American demand. The smaller firms are even worse off, but they are just enabled to creep along by making common goods for Africa, the Levant and the South American markets. These orders they are offered at starvation prices by the London and other merchants, and, having no other recourse, accept them. The steel trade is very quiet indeed.

BIRMINGHAM AND STAFFORDSHIRE.

Dealing in the first instance with the hardware industries of Birmingham itself I find that there is very little improvement in the foreign shipping trade, a fact which is, to a certain extent, counterbalanced by the encouraging inquiry from several of the leading British colonies. With Germany, Russia, Holland, the United States and France the current transactions are fewer and of less importance than at this time last year. The falling off in August with France was 16 per cent.; the United States, 23 per cent.; Germany, 24; the Argentine Republic, 25; and Russia 33 per cent. On the other hand, there was an increase of 7 per cent. with British North America, 48 per cent with India, and 9 per cent. with Australia. Even with Spain itself we are doing a better trade, although the Spanish West Indies have failed us to the extent of 60 per cent. The home market is taking small but "urgent" lots of hard ware, such as kitchen ware and the like. The metal rollers are busy on sheet metal for cartridges on German and Spanish account. The railway carriage builders are doing a good stroke of business. Sheet metal has been reduced one-half penny per lb. during the week; iron, gas, water and steam tubes are 10 to 15 per cent cheaper than a month ago, owing to extensive underselling in this branch of trade, and malleable nails are 2/ to 3/ per cwt. lower. In the iron trade proper of Birmingham and Staffordshire generally there is a fair amount of business doing on shipping account, but no large orders are being given out in consequence of the expectation which prevails that lower prices will be declared at the end of the quarter. This expectation had arisen before, but it was mainly fostered by the coal masters' decision on that day to reduce thick coal by 3/ per ton. A reduction of that amount in fuel has always hitherto meant a fall of 40/ per ton in best finished iron. Whether it will result so in this instance has yet to be seen. Thus until the end of this month business may be expected to drag along but slowly.

SOUTH WALES.

The wages difficulty with the Welsh and Monmouthshire colliers has been disposed of with sufficient satisfaction to allow of the men resuming work, hence a better era seems about to dawn upon the iron trade of the principality and the county named. Plymouth and Dowlais are reported to be doing much better in rails and bars, and there is a rumor that Cyrfarthfa is not destined to remain quiescent much longer. Steel rail orders are being taken at £9. 10/ to £10. 5/, and iron ones at £7. 10/ to £8 per ton. The tin plate works are fairly off for work, but there is no pressure. Prices, per box of 225 sheets at the works, are: I C coke, 29/ to 30/; I X coke, 36/ to 38/; I C charcoal, 35/ to 37/; and I X charcoal, 42/ to 44/.

THE METAL MARKETS.

In the main, metals have been steady during the week, with very little alteration in the average of prices, except, perhaps, in lead. This metal is certain to be irregularly dearer during the interruption of the Spanish supplies by internecine war. Copper is somewhat firmer, but the upward movement of quotations reported as having taken place in some directions cannot be said to be general. I append merchants' and other reports:

Messrs. Von Dadelszen & North: "Copper has been in demand, and Chili bars have been taken freely at £77. 10/ to £78. 10/, on the spot and for short arrival, closing at the best. Wallaroo has been sold, to some extent, at £88 to £88. 10/; Burra, £87 to £87. 10/; English firm. *Tin.*—Straits has been sold to a moderate extent at £92 to £92. 10/, on the spot, and £91 to £92, to arrive. Australian at £90 to £90. 10/, on the spot, and £90 to arrive. In Holland, Banca is firm, at 58½ fl., spot, and 57½ fl. ex. the sale to be held on the 29th inst., which will consist of 22,300 slabs. Billiton, spot, 55 fl., and to arrive 54½ fl. English steady; common quoted £96. *Tin Plates.*—No change. Lead firm; £21. 5/ to £21. 7/6. *Spelter.*—A good business done at £22. 5/ for ordinary brands, and £22. 10/ to £22. 15/ for specials. Quicksilver, £23."

The *Mining Journal*, Sept. 12, thus reports: "*Copper.*—The market for the most part has assumed a quiet, but tolerably steady appearance. The price of Chili bars has only slightly oscillated between £77 and £78 per ton, sales at the commencement of the week being reported at £77, after which a gradual stiffening ensued, and business has been reported at £78. 10/, cash. Orders for English manufactured have been limited, and sellers have submitted to a reduction. In yellow metal, also, sellers have given way ¼d. per pound, both for sheets and sheathing, but prices are again firmer, and the fall has been partly recovered, sales having been effected at 7⅝d. per pound, and 7¾d. is now quoted. *Lead.*—The firmness of the market continues, and sellers are anticipating higher prices. Not only is there a satisfactory inquiry, but the supplies of Spanish are limited, and this will probably be so while Spain keeps in such a disturbed state. *Spelter.*—The principal transactions that have been reported in this metal have been for deliveries at our ports, and the prices realized have ranged from £21. 17/6 to £22. 5/, the market closing at the latter price. In hard, sales have been made at £14. 15/. *Quicksilver.*—The advanced price of £23 does not appear to have materially affected the demand, and sellers are firm at the quotation. *Tin.*—Throughout the week the market has been steady, and prices have only undergone slight alterations. There is an absence of speculation, and no very decided expression of opinion can be gathered, either by the nature or the extent of the transactions. The present demand is chiefly for home consumption. Large stocks of foreign exist in first hands, but as they are well held and prices are fairly reasonable, they do not make a very marked impression. It is the future supplies from Australia that keep the market in a state of suspense, and operators are waiting reliable information in regard to the estimated annual quantity, and the cost of production and transit, before venturing to enter upon any movement, either in an upward or downward direction. Straits have ruled between £91 and £93; Australian, £90 to £90. 10/. On the 29th inst. there will be the Dutch Trading Company's sale in Holland, when 20,300 slabs of Banca will be offered; but the result is not likely to affect prices of foreign on this side, as the relative value of Banca is already so much above that of any other kind that there is plenty of room for a good fall before it could materially affect them. *Tin Plates.*—Orders are not very plentiful, and the reduced prices are not deemed sufficiently tempting to influence buyers to take more than they want for present use.

Messrs. French & Smith (London, Sept. 10th), say: "There is rather more activity in the metal trade, and values show a tendency to advance. Iron is unchanged. There is more demand for copper, but owing to the paucity of sellers, business is restricted Tin is steady, with a fair demand for foreign. Importers of Straits hold for higher prices, and consequently very little is offered on the market. The Dutch Trading Company announce that they will offer for sale at Rotterdam, on the 29th, inst., 22,330 slabs Banca, no Billiton. Banca, £101 per ton; Billiton, £95; Straits, fine, £92. 10/ to £93; ditto afloat or forward, £92; Australian ingot, £90. 10/ to £91; English, refined, £98 to £99; ditto, common bars in barrels, £96 to 97; ditto, blocks and ingots, £95 to £96 per ton. *Tin Plates.*—Charcoal I C, 36/ to 41/ per box; coke I C, 27/ to 35/ per box. Lead and Spelter scarce, and command higher prices. Quicksilver unchanged."

The Porcelain Mania.

An unusual mania for porcelain is among the latest developments of European, and especially of English, art connoisseurs. This is, of course, nothing new in its general features, but is merely one of those temporary art epidemics which now and then make their appearance, serving, at least, to recruit the ranks of specialists, and keep alive branches of art which might otherwise fall into comparative oblivion. *Punch* lately took his fling at the china lovers by representing a lady holding an antique teapot in caressing fashion, while a narrow chested gentleman stands at her side looking at the teapot with longing eyes, and remonstrating with the lady for her selfishness in holding it for two hours and never giving him a chance to take it at all. The picture is hardly an exaggeration, as any one may see who has a chance to visit a valuable collection in company with a connoisseur. The special characteristics of the disease are very like those which may be seen in a victim of bibliomania. There is the same eagerness of eye, the same careful and loving manipulation of the object under examination, we regret to believe, the same disregard under adequate temptation of the laws of property. This excessive love of china may be traced to the last century, when specimens of Oriental workmanship were all the rage. A poet of the time writes thus of a certain victim of the fever:

"China's the passion of his soul;
A cup a plate, a dish, a bowl
Can kindle wishes in his breast,
Inflate with joy, or break his rest."

Among the most valuable collections in London are those of Mr. Gladstone, the ex-Minister, Lord Overstone and Lord Londsdale; that of the last named being, by repute, the finest in England. In this country there are several collections of great value, in the eyes of those who can appreciate their worth. That of the Metropolitan Museum is the best open for public inspection, and a large part of this is loaned for exhibition. Mr. W. C. Prime has the most noted of the private collections. Naturally, a wonderful rise in the nominal value of old porcelain has resulted from this sudden increase in the demand, and the shades of the old ceramic artists of Dresden, Berlin, Sevres, Chelsea and Bristol, must, if they know what is going on, shake their heads in amazement at the prices which are to-day paid for specimens of work which, perhaps, netted the producer only a few pence. In this country we are sadly behind hand in this department of art, though the prospect is encouraging. Late discoveries indicate that kaolin, the clay requisite for manufacturing the best qualities of porcelain, exists in the country, of good, and perhaps superior, quality. Such being the case, there is no doubt but that in time we shall find out how to treat it in order to obtain the best results; and the decorative part will follow, as a matter of course, provided that art in general receives the encouragement that is its due. Great progress has of late been made in England, owing to the generous steps taken by the general and local authorities. Tiles and china ware of all sorts are produced in great quantity, of graceful shapes and patterns; and we hope that within the next decade something creditable will be accomplished on this side the Atlantic. Trenton, N. J., is at present, we believe, the undisputed headquarters of the manufacturing interest here, and we are glad to learn that the more enterprising of the factors are using every effort to secure the best workmen from abroad, in order that home talent may be more rapidly utilized.

The new thermo-electric battery of Clamond seems fully to answer the expectations at first formed. For galvano-plastic work it has already been adopted in many of the large establishments of Paris. It is now proposed to combine it with the Gramme machine to form a motor for light work. Recent experiments have shown that the ordinary small Gramme machine, used for illustrating the principle only, can furnish when driven by three Bunsen cells a force of two kilogram-meters. Now, since two Clamond elements yield the same amount of electricity as three Bunsen elements, and consume 300 liters of gas per hour, it follows that the above amount of power, abundantly sufficient to run a sewing machine, for example, can be furnished at an expense of 1500 liters of gas for five hours' work, at a cost here in this country—assuming gas to cost $2·25 a thousand feet—of nearly twelve cents.

The attention of persons desirous of engaging in manufacturing is invited to the advertisement among our special notices signed "Partner." The manufactory in which an interest is thus offered is well known to all our readers.

London Metal Market.

(From The Mining Journal.)

	£.	s.	d.	£.	s.	d.
Copper—₩ ton.						
Best Selected	87	0	0	88	0	0
Tough Cake & Tile	85	0	0	86	0	0
Sheathing and Sheets	91	0	0	92	0	0
Bolts	96	0	0	98	0	0
Bottoms	93	0	0	95	0	0
Old	90	0	0	93	0	0
Australian	87	0	0	88	0	0
Wire ₩ D.	0	1	0¾		—	
Tubes "	0	1	0¾	0	1	1
Brass—₩ D.						
Sheets	0	0	10	0	0	11
Wire	0	0	10¾	0	0	11
Tubes	0	0	11	0	0	12
Yellow Metal Sheathing	0	0	8	0	0	9¼
Sheets	0	0	7¾			8
Spelter—₩ ton.						
Foreign on the spot	22	5	0	22	10	
" to arrive	23	7	6		—	
Zinc—₩ ton.						
In Sheets	29	0	0	29	5	0
Quicksilver—₩ bottle	23	0	0		—	
Tin—₩ ton.						
English Blocks	96	0	0		—	
Ditto Bars (in brls.)	97	0	0		—	
Ditto Refined	98	0	0	99	0	0
Banca	99	0	0	100	0	0
Straits	92	0	0	93	0	0
Australian	91	0	0	91	10	0
* **Tin Plates**—† ₩ box.						
IC Charcoal 1 qual.	1	16	0		nom	
IX " 1 qual.	2	0	0		"	
IC " 2 qual.	1	15	0		"	
IX " 2 qual.	2	1	0		"	
IC Coke	1	7	0	1	8	0
IX "	1	13	0	1	15	0
Canada Plates ₩ ton.	19	0	0		—	
" at works	18	19	0		"	
Iron—₩ ton.						
Bars Welsh, in London	9	5	0			0
" to arrive	9	0	0	9	5	0
Nail Rods	10	15	0	11	10	0
Nail Rods, Staff'd in L'non	11	0	0		—	
Bars	11	0	0	11	0	0
Hoops	12	0	0	13	0	0
Bars at Works	10	0	0	11	0	0
Hoops ditto	11	0	0	11	0	0
Sheets, single, and plates	13	0	0	15	0	0
Pig, No. 1, in Wales	5	0	0	6	10	0
Refined metal ditto	7	0	0	8	0	0
Bars, common ditto	8	10	0		—	
Do, merchant, Tyne or Tees	9	0	0		—	
Ditto, Railway, in Wales	7	0	0	8	0	0
Ditto, Swedish, in London	17	0	0	18	0	0
To arrive	17	0	0	19	0	0
Pig, No. 1, in Clyde	3	15	0	4	5	0
Ditto, f.o.b., Tyne or Tees	4	11	0	5	15	0
Ditto, Nos. 3, 4, f.o.b.	4	10	0	5	10	0
Railway Chairs	5	0	0	5	5	0
" Spikes	14	10	0	16	0	0
Indian Ch'coa. Pigs in L'don	10	0	0	12	0	0
Steel—₩ ton.						
Swedish, in kegs (rolled)					—	
Ditto (hammered)	19	10	0	20	0	0
Ditto, in faggots	21	0	0		—	
English, spring	23	0	0	25	0	0
Lead—₩ ton						
English Pig, common	21	5	0	21	10	0
Ditto, LB	21	7	6			
Ditto, WB	22		0	0	0	
Ditto, Sheet	23	0	0		—	
Ditto, Red Lead	23	0	0	25	10	
Ditto, White	30	0	0	32	0	0
Ditto, Patent Shot	25	0	0	25	10	0
Spanish	21	0	0		—	

* At the works, 1s. to 1s. 6d. per ton less. Terne plates 2s. per box below tin plates of similar brands.

† Add 6s. for each X.

The New Atlantic Cable.

The Great Eastern has completed the laying of her fifth Atlantic cable. The only novelty in this year's operations over those of last year consisted in starting to pay out from Newfoundland toward Ireland, all previous Atlantic cables having been laid from east to west, with the exception of the 1858, which, as we stated in our number before last, was paid out from two ships starting from mid-ocean.

The recent start was made late in the season, and the successful run which the ship has performed, a part of the time against heavy northeast gales, speaks well for ship, cable, machinery and staff. We have not heard of a single hitch or stoppage, and if none have occurred, the manufacture of such a long length, without a flaw, shows to what perfection the machinery for manufacturing, and the system of testing has been brought by engineers and electricians. Captain Halpin was in charge of the cable and ship, and Mr. Laws, chief electrician for the Telegraph Construction Company, and Mr. Hockin, one of the partners of Messrs. Clark & Forde, watched the operations on the part of the Anglo-American Telegraph Company.

The Faraday, which we mentioned in our last number but one as about also to lay an Atlantic cable, and thus produce a kind of Atlantic telegraph cable race against the Great Eastern, only spliced on to the shore end—previously laid from the Irish coast and buoyed—on the 3d, and it appears by the telegrams published in the morning papers, had only got 330 miles from Ireland (or about 150 from the splice) when a fault occurred. She then commenced to pick up; found cable foul of something on the bottom; broke the cable and grappled it again in 2570 fathoms. The fault is stated to have been caused by a piece of wire sticking into the core.

This is exactly the kind of fault which occurred in the 1865, the 1866, and the French Atlantic cables, but it does not appear to have been met with either in the 1873 or 1874 Anglo-American cables, owing to the whipping of yarn which was adopted on those cables, and which keeps the outer wires, when broken, from protruding, and being torn off by the cable itself when sweeping round on the surface of the coil during the operation of paying out. The Faraday's cable has also this whipping of yarn, however, and we believe this is the first instance since such whipping has been used where such a fault has occurred.

The progress of the Faraday will, in spite of a fault or two, be watched with interest. That faults should occur in the first Atlantic cable made by Messrs. Siemens might be expected, and is even excusable, and the fact that the machinery employed and the engineers engaged on the work can recover the cable from 2570 fathoms is encouraging and most creditable to the firm.

Messrs. Siemens are the first contractors who have had the pluck and capital to contest with the Telegraph Construction Company the honor and profit of Atlantic telegraphy, although several other telegraph contracting firms, with extensive works on the Thames, existed before Messrs. Siemens enlarged their works and started machines for insulating wires with gutta percha.

It is true that the Hooper Company entered into a contract for an Atlantic cable in 1872, a year before Messrs. Siemens, but the Great Western Company, with whom the contract was made, altered their programme, and the cable has been laid along the South American coast from Para to Rio Janeiro, for the Western and Brazilian Telegraph Company.

When we consider that, as far back as 1866, there could be no doubt that Atlantic cables were practicable and would yield large dividends to capital expended on them, it certainly is astonishing that no English capitalists should have been found to back up some of those English contractors and engineers outside of the Telegraph Construction Company for the laying of Atlantic cables, and that at last a German firm should be the first to be allowed to compete with the Telegraph Construction Company. This is the more astonishing, as there are many of our most experienced engineers in submarine telegraph work at liberty to undertake such work.

For some time it was, no doubt, held forth that no ship but the Great Eastern could lay a cable, and the idea of building a ship that would carry an Atlantic cable and be less costly than the Great Eastern was scarcely thought of. In 1868 we gave illustrations of a ship of 8200 tons for laying Atlantic cables, which was designed for a proposed Telegraph Construction Company, which did not, however, come before the public for subscriptions. Since then the Hooper has been built for the Hooper Company, and the Faraday for Messrs. Siemens; and, although since then the St. Vincent and Pernambuco section of the Brazilian Telegraph Company has been successfully laid by the Telegraph Construction Company from three ships, and the change from ship to ship made in deep water, it is not at all certain that the single ship of sufficient size is not the most economical, setting aside even the extra risk of delay and expense which must attend the employment of several ships to pay out a long length of cable across deep water. We believe, therefore, the Faraday is a step in the right direction, although she has only three tanks, which is a disadvantage in some circumstances.

The cable of the Direct United States Company is very similar to the other Atlantics. The copper conductor is, however, of 480 pounds to the nautical mile (instead of 400), insulated with 400 pounds of gutta-percha, and the conductor is composed of a large wire surrounded by a layer of very small ones, the total sectional area of copper being thus contained in a smaller circle, and the electrostatic capacity of the line diminished with any given coating of gutta-percha. The arrangement approaches more nearly, in fact, to a single solid conductor, with the advantage of the small wires to keep up the continuity should the larger wire break at a brittle place. This is the only novelty in the type of cable. The shore ends and intermediate cables extend further than the Anglo-American on this side; but at present the section from Torbay to Conception Bay, where the cable is buoyed, ends with deep-sea cable, and we should think that some of this will have to be raised and replaced by intermediate cable, and the shore end cable to meet and splice on to the shore end cable and intermediate cable that must be laid across the Newfoundland Banks.

The interruption to the cables from Placentia Bay to Cape Breton, and from St. Pierre to Duxbury, thus for some hours entirely interrupting telegraphic communication with the United States, is an event which has never occurred before since the Anglo-American cables were laid, and had the Direct United States Cable Company adhered to their original programme of a cable direct from Ireland to New Hampshire, and carried this out at the proper season, they might have gained great *eclat* during their rival's breakdown. As it is, their endeavors to shorten their circuits by crawling along the coast to Torbay and on to Newfoundland, will leave a portion of their line exposed to all the dangers of a light cable laid in shallow water along a nasty coast, and very liable to interruption.

It seems to us, also, a great mistake that the Faraday, during the best part of the summer was engaged in laying the shallow water sections of the line on the American side—which might just as easily have been laid by two moderately sized steamers—instead of being engaged in laying the long span over deep water. The fact that the Faraday has undoubtedly passed successfully through very bad weather lately, and has changed holds without an accident, is encouraging, but we cannot but believe that the risk that is being incurred through the late period to which the operation has been deferred, is a grave error, and that had some of the engineers of long experience in submarine work been consulted when the work was first contemplated, they would have urged with all the authority in their power the extreme importance of securing the summer for the deep-sea portion, for, should another break occur, there is no certainty of the weather being sufficiently fine for grappling operations until the spring of next year. However, we heartily wish Messrs. Siemens every success in their enterprise.—*Engineering.*

The Coal and Metallic Produce of the United Kingdom.

A table recently published supplies material for a comparative statement of the quantities and value of the coal and metals produced from British ores in the United Kingdom from 1859 to 1872, the value given being that which is estimated at the place of production. Looking first at coal, we find that in the fourteen years the rise in the yield has been from 71,979,765 tons in 1859 to 123,497,316 tons in 1872, or an average increase of about three and three-quarter million tons annually. This increase has been comparatively steady, although in two years there was a decrease. In 1863 the yield fell by two million tons below the previous year, but recovered in 1863 by a rise of five millions, and in 1868 the supply was more than 1,000,000 tons below 1867, but the fall was again followed by a large rise. In 1872 the yield was about 6,000,000 tons in excess of 1871. While the supply has nearly doubled, its value has nearly trebled, and has risen from £17,994,441 in 1859 to the enormous sum of £46,311,143 in 1872. This, it must be remembered, was the estimated value at the place of production. The relative value of a ton of coals, as furnished by the comparison of these figures, was 5/ a ton in 1859, and within a fraction of 7/6 a ton in 1872. This increase in value has been accompanied and has partly resulted from our large consignments of coal to other countries; our exports under that head, as was shown in our notice of the export trade of the United Kingdom a few days ago, having nearly doubled in the same period to which these figures refer. The produce of the metals from British ores shows very different results. The yield of pig iron has risen from 3,712,904 tons in 1859 to 6,741,929 tons in 1872, an increase of about 3,000,000 tons. The gross value of the pig iron has doubled with the quantity raised, and thus the relative value in 1859 and 1872 is the same. The total value of the coal and metals raised in 1859 was £31,680,581, and in 1872 it had risen to £68,830,976, or more than double, the increase, as we have shown, being chiefly from the coal supply.—*Pall Mall Gazette.*

Slate Roofs.

Messrs. Stone & Parker and Messrs. Clark & Teal exhibit two models of improved slate roofs at the Chicago Inter-State Industrial Exhibition, which form the subject of a communication from Mr. R. U. Piper, published in one of the Chicago papers. Mr. Piper says:

The roof model which seems at last to fulfill the requirements for general use is the flat one laid in various colored slate, and taking this kind of roof as the basis of our calculations, I intend to give your readers specifications of costs etc., which shall enable them fully to understand the matter.

First, safety against fire. Slate roofs, next to tile roofs, seem to form, when properly put on, the most perfect safeguard against fire. As an illustration of this take the retort building which went through the great fire of 1871, and though all the wood work of the building was consumed and the slates of course heated and thickly coated with smoke from the surrounding fire, they remained unbroken, and have since been used for the roof of another structure. In the last fire one valuable building was saved by its slate roof. We have mentioned these two facts in order to show that slate will endure a great degree of heat without fracture. That they have failed in many cases to yield the protection they are capable of, is owing to the manner in which they have been laid. The small model shows the new method of laying the slate, by which absolute protection against rain, wind and snow is secured, and also a good degree of safety against fire. The slates, it will be seen, are laid in such a manner that the joints are all lap joints, so that there is no place for water to get in between the seams. Each slate projects an inch and a half over its fellow, resting upon two sides, between which is placed a water and fire-proof cement. In the spaces formed by the angles of the slates is also put cement sufficient to fill up the whole space, thus forming a perfectly solid roof covering, which can be walked over without injuring the slate, and where they cannot be, in the least degree, loosened or separated, even when subjected to violence sufficient to fracture them. The manner of nailing is also unique, fastening the slate near the middle, thus making them more secure than in the ordinary method.

As will be seen by the model this roof may be laid flat without danger of leaking.

The weight of a square will be about 325 pounds. Slate roofs, laid in the ordinary way, with 8 by 16 inch slate, weigh about 570 pounds to the square. The cost of roofs like this will, of course, be less than that of the ordinary-slate roofs, and when we consider that they will last indefinitely without repairs, we cannot help being convinced that they must prove by far the cheapest roofs in the market.

The number of slate 8 inches by 16 required to cover a square in the old method is 257—that is, 228 square feet of slate of the above size are required to cover a square—that is, 100 square feet of roof.

By the new method 130 slates one foot square—that is, 130 square feet of slate—cover one square; but little more than half of what is used in the old way of laying the slate.

From the comparative lightness of this roof a considerable saving may be made in the framing, as compared with those to be covered with tar and gravel.

From the authorities we have before us, the weight of a first class tar and gravel roof should be 900 pounds to the square, and this calculation is based upon the gravel weighing 110 pounds to the cubic foot. Some kinds of gravel weigh 130 pounds to the cubic foot, of course materially increasing the weight per square. In addition to the saving in the cost of the frame of the roof, on account of the decrease in weight over the old method, we should have mentioned that a good deal of saving will also be made in this direction, as the extent of the roof can be reduced to a minimum, that is, laid as flat as may be desirable. The saving in insurance must also be considerable. Joining all the above items together, it would seem as if these roofs might be put on all classes of buildings; so as to come at first, even—or at least after a year or two—at less cost than any other kind of roofs.

But this idea of first cost dwindles into insignificance when we consider the thousands and millions of dollars they would save every year from the almost absolute protection they would afford against wide spreading conflagrations.

Would it be too much to estimate that the loss in our last great fire would be more than enough to cover all the buildings in our city with one of these fire-proof roofs?

Ammonia Ice Machines.—It is a well known fact that when a liquid is converted into gas it abstracts a certain amount of heat from the surrounding objects, and hence liquids which volatilize readily are said to produce a certain amount of cold. Ether, when placed on the skin, evaporates so rapidly as to produce the sensation of extreme cold. Gases, like sulphurous acid, nitrous oxide, carbonic acid and ammonia, which may be liquified by pressure, produce very intense cold if allowed to evaporate rapidly, which is done by removing the pressure. The apparatus invented by C. F. Carre, of Paris, for freezing water by means of ammonia, consists of a generator and a receiver made of iron boiler plate, and connected by means of a strong iron tube. In the generator is placed a solution of ammonia saturated at 32° Fah., which is heated by means of a suitable furnace, while the empty receiver is immersed in cold water. On heating the solution of ammonia the gas is driven off and collected in the receiver, where it is condensed to a liquid as soon at the pressure passes ten atmospheres. The receiver is constructed with a cylindrical space, into which a closely fitting vessel filled with water is now placed, and the apparatus is reversed, the generator being immersed in the water. The liquified ammonia, having the pressure removed, passes again into the gaseous state, and is reabsorbed by the water in the generator. By this means large quantities of ice are produced in tropical countries at a reasonable price. None of the gas is wasted, and the only expense is for labor, apparatus and fuel.

Werdermann's Process for Resharpening Files.—Well worn files are first carefully cleaned with hot water and soda; they are then placed in connection with the positive pole of a battery, in a bath composed of 40 parts of sulphuric acid, and 1000 parts of water. The negative is formed of a copper spiral surrounding the files but not touching them; the coil terminates in a wire which rises toward the surface. This arrangement is the result of practical experience. When the files have been in the bath 10 minutes they are taken out, washed and dried, when the whole of the hollows will be found to have been attacked in a very sensible manner; but should the effect not be sufficient, they are replaced in the bath for the same period as before. Sometimes two operations are necessary, but seldom more. The files, thus treated, are to all appearances like new ones, and are said to be good for 60 hours' work. M. Werdermann employs 12 medium Bunsen elements for his batteries.

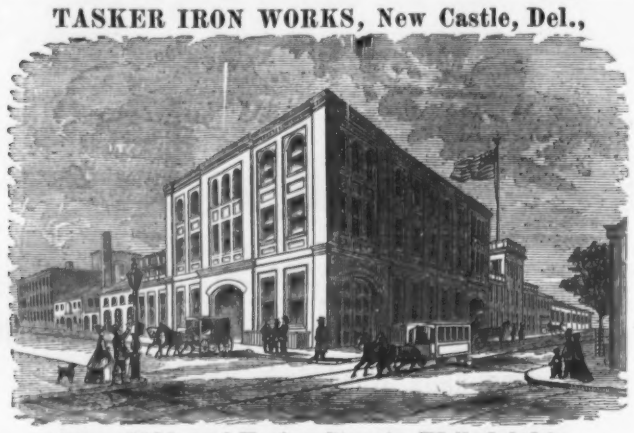
Pipe, Fittings, &c.

Thomas T. Tasker, Jr. Stephen P. M. Tasker

MORRIS, TASKER & CO.,

PASCAL IRON WORKS, Philadelphia,

TASKER IRON WORKS, New Castle, Del.,



Office, Fifth and Tasker Streets, Philadelphia.
Office and Warehouse, No. 15 Gold Street, New York.
Office and Warehouse, No. 36 Oliver Street, Boston.

MANUFACTURERS OF

WROUGHT IRON WELDED TUBES,

Plain, Galvanized and *Rubber-Coated*, for Gas, Steam and Water.

Lap-Welded Charcoal Iron Boiler Tubes.

Oil Well Tubing and Casing, Gas and Steam Fittings, Brass and Steam Fitters' Tools, Cast Iron Gas and Water Pipe, Street Lamp Posts and Lanterns, Improved Coal-Gas Apparatus, Etc.

Backus's Patent Bit Brace

AND

Angular Extension BORER.

Angular Extension Borer.

Q. S. Backus,

SOLE MANUFACTURER OF

ANGULAR EXTENSION BORER.

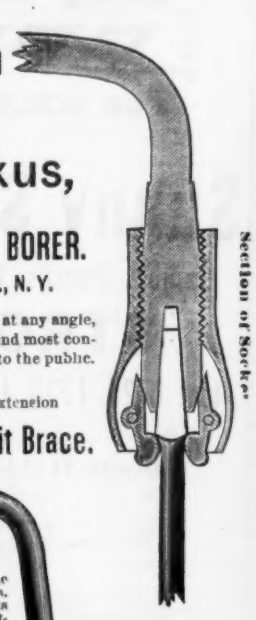
Salesroom. 82 Chambers St., N. Y.

This tool can be used in any brace, at any angle, and also for straight work. Is the best and most convenient tool of its kind ever offered to the public. Eight thousand sold the first year.

Also Manufactures the Straight Extension

Backus's Pat. Improved Bit Brace.

The socket is arranged so that the strain does not come on the jaws, but on the square hole which fits the shank of the bit. The jaws attached to the sleeve hold the bit firmly in the square, and center it truly. The sweep is of wrought iron. The general finish of the stock is good. Its appearance is neat. Mechanics who have used it unanimously pronounce it superior to all others; and we offer it to the trade as the strongest, most simple, and quickest operating brace in the market. We manufacture five sizes. The number of inches of sweep corresponds with the commercial number of the list.



Section of Socket.

BAILEY'S PATENT ADJUSTABLE PLANES.

Thirty different styles in

IRON AND WOOD. **70,000 ALREADY IN USE.**

Smooth Planes,
Jack Planes,
Fore Planes,
Jointer Planes,
Block Planes,
Rabbet Planes,
Circular Planes.

Carpenters,
Cabinet Makers,
Car Builders,
Carriage Makers,
Millwrights,
Wheelwrights,
All Use them.

Manufactured by the **STANLEY RULE & LEVEL CO.,**
Factories: New Britain, Conn. Warerooms: 35 Chambers Street, New York.

UNION NUT COMPANY,

78 Beekman Street, N. Y.

MANUFACTURERS and AGENTS.

Machine Forged Nuts,	Magnetic Tack Hammers,	Carriage Steps,	Bench Saw Sets,
Hot Pressed Nuts,	Common and Patent	Slat Irons,	Corn Hooks,
Wrought Iron Washers,	Wood Choker Mouse	Stump Joints,	Axe Handle Bush Hooks,
Tin Washers,	Trap,	Body Loops,	Butchers' Cleavers,
Carriage Bolts	Elastic Base Knobs,	Box Hooks,	Nail Sets,
Machine Bolts	Steak Hammers,	Box Chisels,	Cork Screws,
Plow Bolts,	Boxwood Rules,	Tobacco Needles,	Ice Awls,
Stove Bolts,	Ivory Rules,	Table Nut Cracks,	Ice Axes,
Elevator Bolts	Plumbs and Levels,	Hasps and Staples,	Tinned Meat Hooks,
Tire Bolts,	Adjustable Plumbs and	Ox Bow Pins,	Can Openers,
Fancy Bolts,	Levels,	Bull Rings,	Patent Boot Jacks,
Bolt Ends,	Pocket Levels,	Cattle Leaders,	Wood Handle Cover
Coach Screws,	Wagon Jacks,	Boxwood Wheel	Lifters,
Turn Buckles,	Axle Clips,	Pulleys,	Hickory Bung Starts,
Blacksmiths' Hammers,	Saddle Clips,	Coopers' Rivets,	Lignumvitæ Mallets,
Riveting Hammers,	Fifth Wheels,	Carriage Rivets,	Tin Spoons,
Machinists' Hammers,	Shaft Couplings,	Boiler Rivets,	Brass Ferrules.
Carpet Hammers,	Felloe Plates,	Hand-Saw Sets	

Pipe, Fittings, &c.

National Tube Works Co.,

BOSTON, MASS. and McKEESPORT, PA.,

MANUFACTURERS OF

Best Quality Lap Welded Iron Boiler Tubes,

STEAM AND GAS PIPE,

Artesian Oil and Salt Well Tubing and Casing,

With Patent Protecting Coupling;

Mack's Patent Injector for Feeding Boilers.

JAMES C. CONVERSE, President, McKeesport. WM. S. EATON, Treasurer, Boston.

New York Office and Warehouse 78 William cor. Liberty Street.

McNab & Harlin Mfg. Co.,

MANUFACTURERS OF

BRASS COCKS

For STEAM, WATER and GAS.

Wrought Iron Pipe & Fittings, Plain and Galvanized

PLUMBERS' MATERIALS.

Illustrated Catalogue sent by express to the Trade on application.

Factory, Paterson, N. J. 56 John Street, N. Y.

PANCOAST & MAULE

227 Pear St.
PHILADELPHIA.

WROUGHT IRON PIPE

FITTINGS, BRASS & IRON VALVES & COCKS
TOOLS & STEAM FITTERS SUPPLIES &c.
PIPE CUT & FITTED TO PLANS FOR MILLS &c.

CONTRACTORS

FOR HIGH & LOW PRESSURE STEAM HEATING APPARATUS FOR ALL CLASSES OF BUILDINGS.

Send for Illustrated Catalogue.

EATON & COLE.

Manufacturers of

Wrought Iron Pipe Fittings,

Sole Agency for the East.

BRASS VALVES, COCKS, TOOLS, &C.,

58 John Street, NEW YORK.

Sole Agency for the Pacific Coast for

Regester's Patent Gauge Cocks,

CONROY, O'CONNOR & CO.,
San Francisco, Cal.

CAST IRON PIPES

FOR WATER AND GAS.

Branches Retorts, &c.

Warren Foundry & Machine Co.,

PHILLIPSBURG NEW JERSEY.

WHEATCROFT'S

SELF-ADJUSTING PIPE WRENCH.

Forged from Best Tool Steel.

The dog is solid over the head of the lever bar, taking the strain off from the pin.

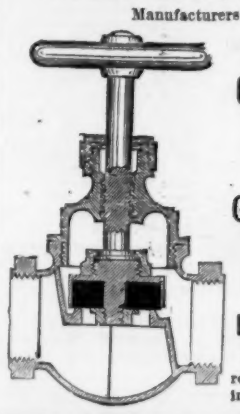
Each Wrench takes four Sizes of Pipe.

J. AUSTIN & CO. 168 Fulton St., N. Y.

Nelson, Finkel & Co.,

439 East 10th St., New York,

Manufacturers of



Jenkins' Patent

Compression Valves

AND

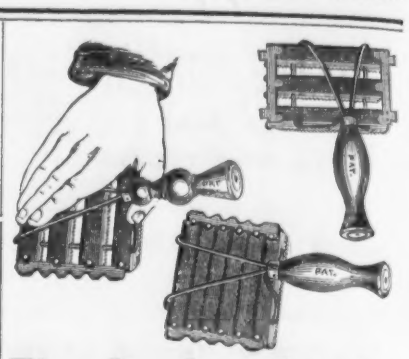
Gauge Cocks

Also,

Nelson's Patent

LUBRICATOR.

Warranted the most reliable and durable in the country.



The Perfect Comb.

We call your attention specially to our new patent endless wire frame comb. The result of a long series of experiments, made with a view to meeting all the requirements of a *Perfect Comb*. It is better, stronger, and more durable than any ever before invented. The raised wire shank gives what has never before been attained, viz: a rest and brace for the thumb, in such a position that the hand cannot come in contact with the horse while using the comb. The wire braces which run from the shank over the back to the front teeth give strength and durability in a direction never heretofore attained, and at the same time serve as an extra handle; and when clasped by the fingers in connection with the raised shank the comb is more firmly, easily, and completely held, and with much less fatigue to the hand than is possible in any other formation—in short, it needs but a trial to vindicate its name: **The Perfect Comb.**

THE LAWRENCE COMB CO.
Factory and Office,
382 2d Ave., cor. 22d St., N. Y.

THE CHARLES GREGG MANUFACTURING CO.

BRASS WORK of all kinds,

FITTINGS FOR

Steam, Gas and Water

PLAIN AND GALVANIZED

WROUGHT IRON PIPE,

Nos. 62 & 64 Gold Street,
NEW YORK.

Business Established, 1850. Incorporated, 1872
Send for Price List.

GRAFF TUBE WORKS.

WILLIAM GRAFF & CO.,

Manufacturers of Plain and Galvanized

Wrought Iron Pipe

For

Gas, Steam, Water, Oil, &c.,

No. 140 First Ave., PITTSBURGH, PA.

Pipe of any Size, Length or Thickness furnished to order.

WM. S. CARR & CO.

Sole Manufacturers of

Carr's Patent Plumbers' Goods

Pumps, Water Closets, Fountains, Vases, &c.

OFFICE AND WAREROOMS

106, 108 & 110 Centre Street,

Factory, Mott Haven, New York.

R. D. WOOD & CO.,

PHILADELPHIA,

Manufacturers of

Cast Iron Water and Gas Pipe, Lamp Posts, Retorts, &c.

Also, Race & Mathews' Patent Hydrant. This Hydrant is perfectly anti-freezing, is the most ornamental and the cheapest made.

R. PAINE, Selling Agent,
Office, 778 Broadway, N. Y.

JOHN MAXHEIMER,

Patented,
June 3, 1862; April 6, 1869; Dec 23, 1873; Jan. 20, 1874.

Manufacturer of

JAPANNED and PATENT EUREKA Bright Metal

BIRD CAGES.

Nos. 247 & 249 Pearl Street
NEW YORK.

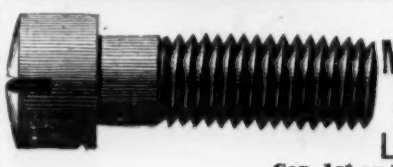
MYERS MFG. CO.,

209 Centre Street, N. Y.

Manufacturers of

FLUTING MACHINES,

Stand Sad Irons, Polishing Irons, Toilet Irons, Towel Racks, &c.



TURNED

MACHINE SCREWS,

One-sixteenth to five-eighths diameter.
Heads and points to sample.
IRON, STEEL and BRASS.

Lyon & Fellows Mfg. Co.,
Cor. 1st and North 3d Streets, Williamsburgh, N. Y.

The Iron Age Directory

and Index to Advertisements.

Annual Make of Iron and Steel in the World.

In the third quarterly report for 1873, says the *Journal* of the Iron and Steel Institute, we reproduced from American sources an approximate estimate of the total production of cast iron on our globe during the year 1871, and now we present a similar one, compiled from the most reliable sources at our disposal, which will probably be found to be a still closer approximation to the truth:

		Tons.
Great Britain	1873	6,741,929
United States of America	1873	2,695,000
Germany	1871	1,664,802
France	1873	1,381,000
Belgium	1872	652,565
Austria, with Hungary	1871	424,606
Russia	1871	354,000
Sweden	1872	322,000
Luxembourg	1872	300,000
Canada	—	100,000
Italy	1872	73,709
Spain	1870	54,007
Norway	—	20,000
South America	—	15,000
Japan	1871	9,370
Switzerland	1872	7,500
Asia	—	40,000
Africa	—	20,000
Australasia	—	10,000
Total		14,885,488

Wherever possible, the date of the last official returns is given in the above statement, which, as it stands, indicates that the present annual production of cast iron in the world amounts to at least 14,885,488 tons, as compared with 13,315,000 tons stated in the former estimate, 13,285,000 tons in the official report of the Vienna Exhibition, and 12,455,000 tons given in Wagner's Chemische Technologie, 1873, in which work an attempt has also been made to estimate the total annual production of steel, the figures given for the different countries being as follows:

	Tons.
Germany	171,050
Great Britain	125,000
France	67,500
Austria and Hungary	60,000
Sweden	12,500
Russia	7,500
Belgium	6,250
Italy	3,250
Spain	750
Total	453,800

The above estimate is, however, self-evidently erroneous, since the annual production of Bessemer steel in Great Britain is alone much more than the quantity here given as the entire production of the whole world (for the twelve months ending 30th June, 1872, the quantity of Bessemer steel made in England was returned at 481,000 tons), and the United States, which in 1873 produced some 171,500 tons of steel, is not even mentioned among the steel producing countries.

The Iron Trade in Austria.

Since the financial crisis of last year, the state of the iron trade of this country has been anything but satisfactory, and many new undertakings previously commenced, as amongst others, the great blast furnace establishment of Dr. Strausberg, have, it is reported, been stopped for the present, or abandoned. Excepting some smaller iron works scattered over other parts of the country, and the lesser iron districts of Moravia, Gallicia and Lower Hungary, which each produce something between 30,000 and 40,000 tons of pig iron per annum, the bulk of the Austrian iron manufacture is confined to the three great centers: Bohemia, which turns out about 130,000 tons; Styria and Carinthia, producing some 178,000 tons; and Upper Hungary, with a make of some 100,000 tons of pig iron yearly. Of these three districts, Bohemia is the only one provided with extensive coal fields, which, although at present but comparatively little developed, must soon assume much greater importance from the numerous railways which have lately been constructed, or are in course of construction, for placing them in communication with the iron ores and the rest of Austria. Of the Bohemian iron companies, the Prague "Eisenindustrie Gesellschaft" is one of the largest. The Adalbert Huette, at Kladno, recently visited by the author, which belongs to this company, contains 6 blast furnaces, with extensive foundries and rail, girder and bar rolling mills, which are stated to have turned out of late years some 35,000 tons of rails, girders, &c., per annum; at present, *i. e.* in June, only one blast furnace is in operation, and most of the mills are idle. A remarkable feature in these works is the carrying out on a large scale of M. Jacobi's (who is director of the establishment) process for dephosphorizing the iron ore previous to its being smelted in the blast furnace. The ironworks of Prince Furstenberg at Althuette, near Pilsen, of Baron Klein at Stephanau and Zaeptau, of MM. Bondy at Prague, and the Neudeck Iron Works, make collectively a yearly turn out of about 32,000 tons of wrought iron in the form of rails, girders and bar iron. In Gallicia, close to the extensive coal fields of Ostrau, are situated the Wittkowitz Iron Works, belonging to Baron Rothschild, and the Teschen Iron Works, the property of Archduke Albrecht, who are amongst the largest makers of iron and puddled steel rails in Austria; the output of the former works being some 20,000 tons of rolled iron and steel, and of the latter about 16,000 tons annully. In Styria the puddling of iron is almost altogether effected by the employment of brown coal or peat as fuel. The latter material is successfully used at many works, and when burnt in Siemens' regenerative puddling furnaces gives from nine to ten charges of 400 lbs. each, with a loss of 5 per cent., and a consumption of 16 cubic feet air dried peat, whereas the quantity of peat required for puddling in an ordinary furnace is as much as 24 cubic feet per 100 lbs. of puddled bars.

The Catasauqua *Dispatch*, of Sept. 28th, says: Workmen have been employed the last week in refilling No. 6 furnace of the Crane Iron Works, and this evening fire will be applied, and during the coming week blast will be introduced. This is favorable news for Catasauqua, as three of the largest furnaces will be in operation, and if trade should brighten up, others will be added to the list.

HENRY DISSTON & SONS,

Keystone Saw, Tool, Steel and File Works,

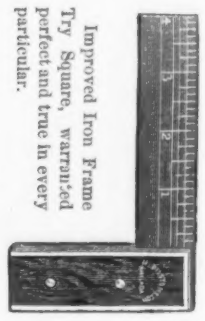
PHILADELPHIA.

Manufacturers of SHEET STEEL, and all Articles made from Sheet Steel.

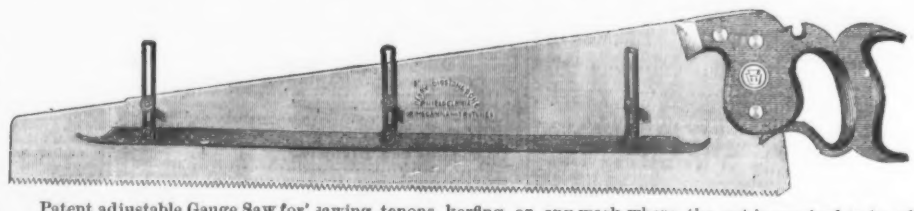
SAWS OF EVERY DESCRIPTION.

Also, FILES, TOOLS, Etc., and all kinds of Labor Saving Implements for keeping Saws in perfect order.

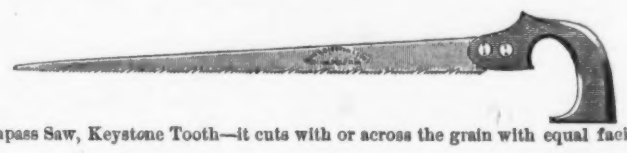
Hand Saw with adjustable handle. The thumb screws in the handle operate on the butt of the saw blade, and can be so adjusted as to give the blade any desired pitch.



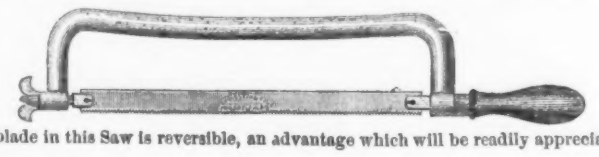
Improved Iron Frame Try Square, warranted perfect and true in every particular.



Patent adjustable Gauge Saw for sawing tenons, kerfing, or any work where the cut is required to be of definite depth. Will pay for itself in one day. Try it and be convinced. Remove the gauge and use as an ordinary saw.



Compass Saw, Keystone Tooth—it cuts with or across the grain with equal facility.



Hack Saw. The blade in this Saw is reversible, an advantage which will be readily appreciated by mechanics.

READ, MARK, LEARN.

We guarantee our Cross-Cut Saws to do more work, day in and day out, the season through, than any other saw in the market.

The test of practical experience has been ap-

plied, the verdict given, the fiat has gone forth, and the Humbugs are fast fizzling out, while our rapidly increasing sales testify to the esti-

mation in which these saws are held.

We pledge ourselves that no effort shall be wanting to keep up the standard and reputation of our manufactures.

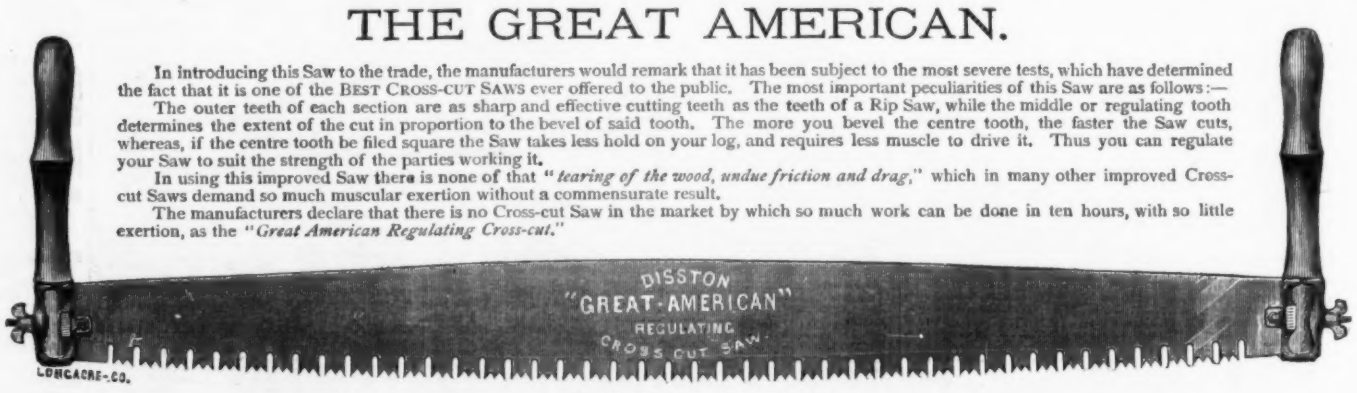
THE GREAT AMERICAN.

In introducing this Saw to the trade, the manufacturers would remark that it has been subject to the most severe tests, which have determined the fact that it is one of the BEST CROSS-CUT SAWS ever offered to the public. The most important peculiarities of this Saw are as follows:—

The outer teeth of each section are as sharp and effective cutting teeth as the teeth of a Rip Saw, while the middle or regulating tooth determines the extent of the cut in proportion to the bevel of said tooth. The more you bevel the centre tooth, the faster the Saw cuts, whereas, if the centre tooth be filed square the Saw takes less hold on your log, and requires less muscle to drive it. Thus you can regulate your Saw to suit the strength of the parties working it.

In using this improved Saw there is none of that "*tearing of the wood, undue friction and drag*," which in many other improved Cross-cut Saws demand so much muscular exertion without a commensurate result.

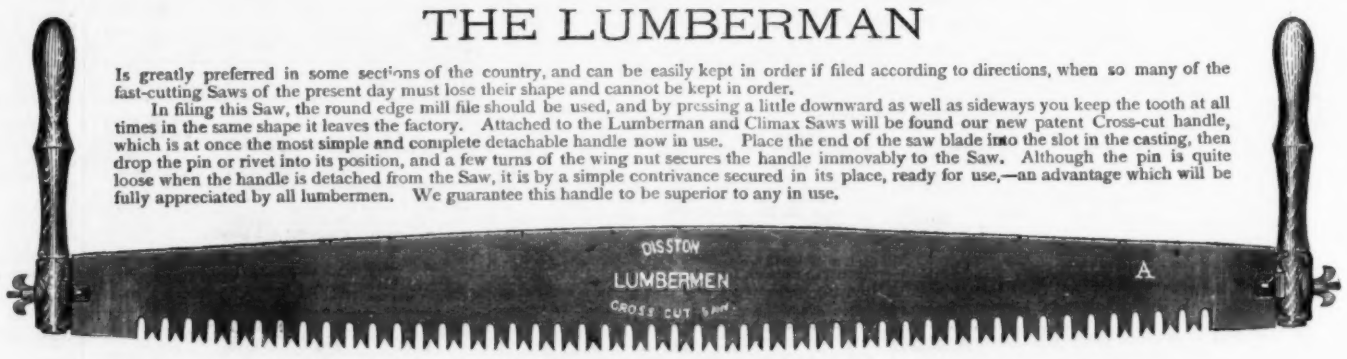
The manufacturers declare that there is no Cross-cut Saw in the market by which so much work can be done in ten hours, with so little exertion, as the "*Great American Regulating Cross-cut.*"



THE LUMBERMAN

Is greatly preferred in some sections of the country, and can be easily kept in order if filed according to directions, when so many of the fast-cutting Saws of the present day must lose their shape and cannot be kept in order.

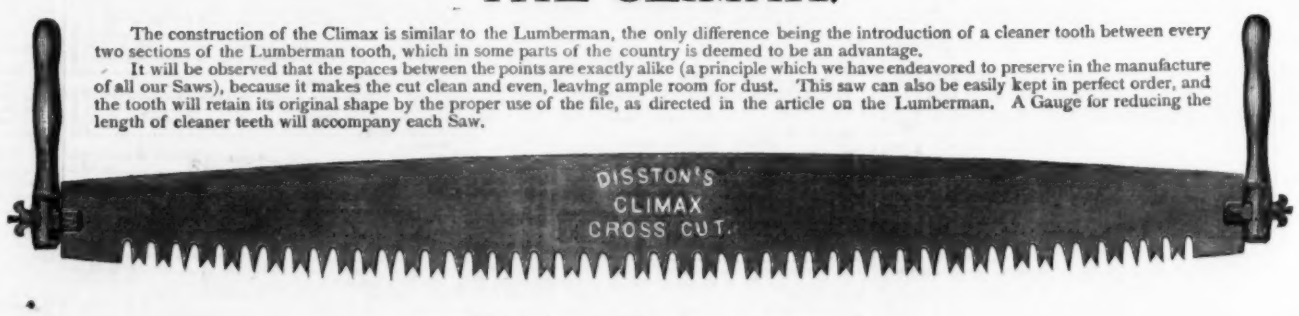
In filing this Saw, the round edge mill file should be used, and by pressing a little downward as well as sideways you keep the tooth at all times in the same shape it leaves the factory. Attached to the Lumberman and Climax Saws will be found our new patent Cross-cut handle, which is at once the most simple and complete detachable handle now in use. Place the end of the saw blade into the slot in the casting, then drop the pin or rivet into its position, and a few turns of the wing nut secures the handle immovably to the Saw. Although the pin is quite loose when the handle is detached from the Saw, it is by a simple contrivance secured in its place, ready for use,—an advantage which will be fully appreciated by all lumbermen. We guarantee this handle to be superior to any in use.



THE CLIMAX.

The construction of the Climax is similar to the Lumberman, the only difference being the introduction of a cleaner tooth between every two sections of the Lumberman tooth, which in some parts of the country is deemed to be an advantage.

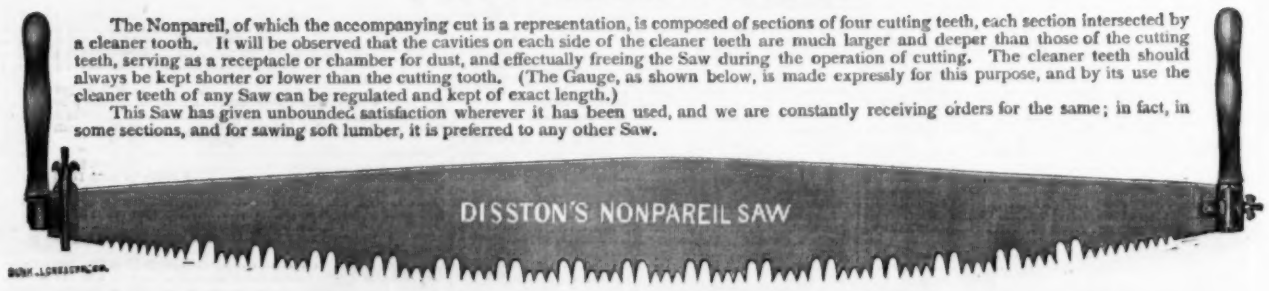
It will be observed that the spaces between the points are exactly alike (a principle which we have endeavored to preserve in the manufacture of all our Saws), because it makes the cut clean and even, leaving ample room for dust. This saw can also be easily kept in perfect order, and the tooth will retain its original shape by the proper use of the file, as directed in the article on the Lumberman. A Gauge for reducing the length of cleaner teeth will accompany each Saw.



THE NONPAREIL.

The Nonpareil, of which the accompanying cut is a representation, is composed of sections of four cutting teeth, each section intersected by a cleaner tooth. It will be observed that the cavities on each side of the cleaner teeth are much larger and deeper than those of the cutting teeth, serving as a receptacle or chamber for dust, and effectually freeing the Saw during the operation of cutting. The cleaner teeth should always be kept shorter or lower than the cutting tooth. (The Gauge, as shown below, is made expressly for this purpose, and by its use the cleaner teeth of any Saw can be regulated and kept of exact length.)

This Saw has given unbounded satisfaction wherever it has been used, and we are constantly receiving orders for the same; in fact, in some sections, and for sawing soft lumber, it is preferred to any other Saw.



Plain Truths for Practical Men.

We guarantee our Cross-Cut Saws to do more work, day in and day out, the season through, than any other saw in the market.

The test of practica experience has been ap-

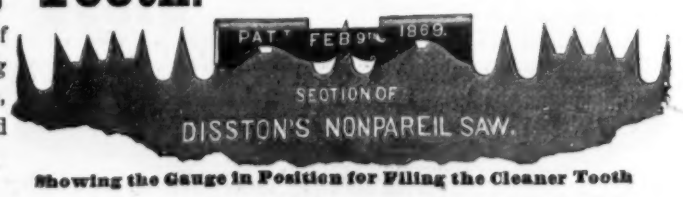
plied, the verdict given, the fiat has gone forth, and the Humbugs are fast fizzling out, while our rapidly increasing sales testify to the es-

timation in which these saws are held.

We pledge ourselves that no effort shall be wanting to keep up the standard and reputation of our manufactures.

Gauge for Regulating Cleaning Teeth.

The cleaning teeth of all saws should be somewhat shorter than the cutting teeth, and, although shortened, they should be of uniform length throughout. The inner edge of the Gauge rests on the points of the cutting teeth, the cleaning teeth projecting through the opening in centre of Gauge. Reduce the projecting points, by means of a file, until arrested by the edges of the Gauge, which is made of hardened steel. Thus tooth after tooth can be rapidly and correctly reduced to an even length by any unskilled operator



Showing the Gauge in Position for Filing the Cleaner Tooth

New York Wholesale Prices, September 30, 1874.

HARDWARE.

Anvils.
Solid Cast Steel ... ₩ ℔ 14c
Wright's ... ₩ ℔ gold 12c; over 250 ℔s 12½c, gold
Armitage's Mouse Hole ... gold 11c
Wilkinson's ... ₩ ℔ gold 11½c
Eagle Anvils, ₩ ℔ 11c currency ... dis 15&10 %
Apple Parers.
Domestic; Turn Table; Lightning; Hudson's; Reading; Union; Skeleton Paring, Coring and Slicing ... $7 @ 9 ₩ doz
Turn Table, old style ... $6·75 dis 10 %
Bay State, Paring, Coring and Slicing ... $15 00 dis 5 %
Climax Slicer ... 8 00
Bay State Peach Parer ... $11 00 @ 11 50
Lightning " " ... 11 00 @ 11 50
Peach Stoner and Halver ... 7 00
Augers and Bits.
Douglass; Ives; Beecher; Griswold; Challenge; Noble ... 1st quality ... dis 25, 10&10 %; 2d quality ... dis 25, 10, 10&5 %
Snell Mfg. Co ... dis 15 @ 20 %
Russell Jennings ... dis 10 %
Douglass Mfg. Co. Hollow Augers ... 25&10 %
Cushman's Expanding Hollow Augers ... dis 20 %
Ives Gouge Lip Augers and Bits ... dis 30&10 %
" Hollow Augers ... dis 25&10 %
" Expansive Hollow Augers ... dis 40 %
" Expansive Bits ... dis 20&10 %
Andrews' Bits ... dis 25 %
Clark's Expansive Bits ... dis 15 %
Cook's Patent Augers ... dis 50 %
" " Bits ... dis 40&10 %
Shepardson's Double Cut Bits ... dis 20 %
Griswold's Patent ... dis 20 %
Gimlet Bits ... dis 10&10 %
Long Augers ... new list dis 40 %
Bonney's Patent Hollow ... $48 per doz—dis 25 %
Stearns' " " ... $48 per doz—dis 25 %
Morse's Bit Stock Drills ... dis 20 %
L'Hommedieu's Ship Augers ... dis 15 %
Watrous Ship Augers ... dis 15 %
Vaughan's Post Hole—
6 in. $23 60; 9 in. $25 per doz ... dis 20 %
Awls and Tools.
Aiken's ... dis 25 %
Nos. 42 and 43 ... dis 35&10 %
Axes.
Brook's ... per doz $12 00 @ 14 00 net
Blood's ... per doz $12 50 @ 14 00
Hunt's ... ₩ doz $14 00 @ 19 00 dis 5&5&5 % cash
Collins' ... ₩ doz 11 00 @ 15 50 net @ dis 5 %
Hurd's ... ₩ doz 12 50 @ 13 50
Schweitzer Mfg. Co.'s ... ₩ doz 13 00 @ 15 00
Simmons' ... ₩ doz 11 00 @ 11 50
Morris' ... ₩ doz 12 50 @ 13 50
Red Jacket ... ₩ doz 12 00 @ 12 50
Mann's ... ₩ doz 11 50 @ 13 00
Double Bitted ... ₩ doz 21 50 @ 22 00
Lowell Tool Co., "Peerless" ... ₩ doz 13 00 @ 14 50
Underhill's ... ₩ doz 12 00 @ 13 00
" Crown ... ₩ doz 12 50 @ 13 50
John Leverett's ... ₩ doz 12 50 @ 15 50
Ten Eyck ... ₩ doz $11 00 @ 12 50 net
Balances.
Chatillon's; Frary's; Morton's ... new list dis 15 %
Bands.
Plated ... new list dis 50&5 %
Iron Rim ... new list dis 25&5 %
Brass (Plated list) ... new list dis 50, 10&5 %
Oroide ... new list dis 50&5 %
Bells.
Hand, Light Brass ... dis 65, 5&10 %
Hand Ex. Heavy ... dis 40&10 %
White Metal ... dis 50&10 %
Sheep ... dis 25 %
Swiss ... dis 50 %
Globe ... dis 15&10 %
Abbe's ... dis 15&10 %
Taylor's Patent Door ... dis 25 %
Western Gong ... dis 25 %
Brook's Crank ... revised list dis 50 %
" Pull ... revised list dis 50 %
Hart Mfg. Co., Crank and Pull ... dis 50&10 %
Cow—Common Wrought ... dis 20&10 %
Western ... new list dis 20&10 %
Kentucky "Star" ... new list dis 20&10 %
Dodge's Genuine Kentucky ... new list dis 35 %
Yaw's Genuine ... dis 30 %
Texas ... dis 35 %
Call ... dis 15 %
Bellows.
Blacksmiths' ... dis 20 %
Moulders' ... dis 15 %
Hand Bellows ... dis 10 %
Blind Adjusters.
Domestic ... ₩ doz $3—dis 20 %
Blind Fasteners.
Mackrell's ... dis 30 %
Van Sand's ... ₩ gross $14 00
Washburn's Patent ... ₩ gross 14 00
Merriman's ... new list net
Blind Staples.
Boardman's Patent, ⅜ in. and larger ... ₩ ℔ 37 c
" ⅝ in ... " 42 c
Bolts.
Carriage and Tire, Ætna Nut Co ... dis 60 %
Stove, Ætna Nut Co ... dis 10&5 %
Cast Iron Barrel, Shutter, &c ... new list dis 60, 10&10 %
Wrought Iron Barrel ... new list dis 50, 10&10 %
" " Square ... new list dis 50, 10&10 %
Wrought Iron Flush ... dis 15&10 %
Carriage and Tire, Common ... dis 75&10 %
" " Norway Iron ... dis 50&10 %
Star, Philadelphia ... dis 50 @ 50&10 %
Eagle, Philadelphia ... dis 50 @ 50&10 %
Philadelphia Pattern, P. S. & W ... dis 50&10 %
Tire, Bessemer Steel, Hubbard & Curtiss ... dis 50 %
Carriage and Tire, R. B. & W ... old list dis 50&5 %
Plow, R. B. & W ... dis 30 %
Stove, R. B. & W ... dis 10 %
" Shelton Co, Shaved Heads ... dis 15 %
Union Nut Co., old list ... dis 50&20&5 %
" " Stove ... dis 15 %
Machine ... dis 40 @ 45 %
Borax ... by case, 16c.; less, 18c. ₩ ℔
Boring Machines.
Kellogg's ... dis 15 %
Snell Mfg. Co., Rice's Patent ... dis 20 %
" " Regular ... dis 20 %
Douglas Mfg. Co ... dis 20&10 %
Morticing Machines each ... $18 00
Bow Pins. Union Nut Co., new list ... dis 50&10&5 %
Braces.
Hildreth's Patent ... dis 40, 10&5 %
Barber's Patent ... dis 40&5 %
Q. S. Backus ... dis 40&10 %
Wilson Mfg. Co ... new list dis 10 %
Spofford's Patent ... dis 40&5 %
Noble's Patent ... dis 40&5 %
Bartholomew's American Ball ... dis 10&10 %
" Patent Grip ... dis 40 %
Ives' Novelty ... dis 40&5 %
Common Ball ... dis 15&10 %
Brackets.
Shelf ... dis 60&10 %
Bull Rings.—Union Nut Co., new list ... dis 50&10&5 %
Bung Hole Borers.
Common and Ring ... dis 25 %
Enterprise Mfg. Co ... dis 20&10 %
Ives' Tap Borers ... dis 25 %
Butchers' Cleavers.
Humason & Beckley Mfg. Co ... dis 20&10 %
Bradley's ... dis 25 %
Beatty's ... new list dis 20 %
2 3 4 5 6 7 8 9
$19·00 $21·50 $24·00 $27·00 $30·00 $33·50 $36·50 $40·00
Hart Mfg. Co ... dis 45&10 %
0 1 2 3 4 5 6
$25·25 $29·75 $30·25 $38·75 $43·55 $48·50 $54·00
Butts.
Wrought Brass ... new list dis 30 %
Cast Fast Joint, Narrow ... dis 50&5 %
" " Broad ... dis 50&5 %
Cast Loose Joint ... dis 60&10 %
" " Mayer ... dis 50&5 %
" " Parliament ... dis 50&5 %
Drilled Wire Jointed—
Narrow ... dis 50&10 %
Broad ... dis 50 %
Loose Joint ... dis 60 %
Mayer's ... dis 40&10 %
Parliament ... dis 40&10 %
Loose Pin ... dis 5&10 %
Wrought Fast Joint, Narrow ... dis 30 %
Wrought Broad ... dis 35 %
" Loose Joint ... dis 35 %
Wrought Table and Back Flaps ... dis 30 %
Lull & Porter's Blind Butts ... dis 30 %
Palmer Blind Butts ... dis 30&10 %
Nicholson Blind Butts ... dis 40&10 %
Parker's Blind Butts ... dis 50&5 %
Huffer's Blind Butts ... dis 33⅓&10 %
Clark's Surface Blind Hinges, Nos. 1, 3 and 5 ... dis 50&5 %
" " " " No. 40 and 50 ... dis 50&5 %
" " " " No. 20 ... dis 60 %
" Mortise " " 2, 4, 4½, 6, 8, 10 ... dis 35 %
Seymour's ... dis 50&5 %
Shepard's ... dis 50&5 %
Garretson's ... No. 1, dis 50&10 %; Nos. 2 and 7 dis 50&5 %
The American Spiral Spring Butt Co ... dis 30 %
Standard ... dis 50&5 %
Caps—Percussion, per 1000.
G. D ... 37c
Ely's E. B ... 1-4s. 58c.; 1-10s. 65c., gold
" Double Waterproof, 1-4s, $1·45; 1-10s, $1·52½c., gold
Colt's ... 1-10s 70c., gold
Carpet Sweepers.
Union ... each $2 75 net
Welcome ... each 2 75 net
Cartridges.
Metallic ... dis 50&10 %
Cards.—Horse and Curry ... dis 30&10 %
Cotton ... new list dis 10&10 %
Wool ... new list dis 15&10 %
Carpet Stretchers.
P. S. & W ... per doz $2 00; dis 40&5 %
Castors.
Bed ... dis 30&10 %
Plate ... dis 40&10 %
Sewing Machine ... dis 30&10 %
Cattle Leaders ... new list dis 60&10 %

Chain.
English Coil ... net gold
₩ ℔ ... .13 9¾ 9 8¼ 8¼ 8c
3-16 ¼ 5-16 ⅜ 7-16 ½
Trace, 6½-10-2 ... by the cask, ₩ pair, gold, 58c
Trace, 7-10-2 ... by the cask, ₩ pair gold, 68c
Galvanized Pump Chain ... ₩ ℔ 14c
German Halter Chain ... new list, Jan. 1, dis 15 %
German Coil ... new list, Jan. 1, dis 15 %
Jack Chain, Iron ... dis 50 %
" Brass ... dis 40 %
Chalk.
White ... ₩ gross, 50c
Red ... ₩ gross, 75c
Blue ... ₩ gross, 90c
Crayons ... ₩ gross, 14c
Cherry Stoners.
Family ... ₩ doz $8·50
Chisels.
Socket Firmers ... dis 60&10 %
Socket Framing ... dis 60&10 %
Socket Corner ... dis 60&10 %
Tanged Firmers ... dis 45&10 %
Butcher's ... $5·50 to £ gold—new list
Newbould's ... $5·50 to £ gold
Spear & Jackson's ... $5·50 to £ gold—new list
Clamps.
Cabinet ... dis 60&10 %
Judd's ... dis 45&10 %
Lambert's ... dis 20 %
Providence Tool Co ... dis 10 %
Clips, Axle.
Norway or Best ... dis 30 %
Superior ... dis 50 %
"Star," Superior Philadelphia ... dis 45&5 %
Coal Shovels.
Iron Handled ... ₩ doz, $ 85 @ 1 25
Wooden Handled ... ₩ doz, 1 00 @ 2 00
Coal Hods.—Smith, Burns & Co ... dis 15 @ 25 %
14 15 16 17 18 inch.
Japanned ... $6·00 6·35 6·75 7·50 8·00 per doz.
Galvanized ... 9·50 10·00 10·75 11·50 12·50 "
Morning Glory Funnel Hods—
No. 15 16 17
Japanned ... $9·00 10·50 12·00 per doz
Galvanized ... 13·00 14·50 16·00 "
Sidney Shepard & Co.'s new list ... dis 10 %
Cockeyes ... dis 30 %
Cocks.
Brass Racking ... dis 20&10 %
Lock and Globe ... dis 20&10 %
Coffee Mills.
Board and Box ... dis 15 %
Increase Wilson's ... new list dis 15 %
Selsor's Pat ... $9·50, $10·50—dis 25 %
French Steel ... dis 15 %
The Swift ... dis 25 %
"American" ... dis 20 %
Enterprise Mfg. Co ... dis 20&10 %
Diamond, per doz $4 00 ... dis 10 %
Compasses and Dividers.
Bemis ... dis 35 %
Cook's ... dis 15 %
Excelsior ... dis 30 %
Peck Stow & Wilcox ... dis 25 %
Coopers' Tools.
Bradley's ... dis 15 @ 20 %
Chas. E. Little ... dis 20 @ 25 %
Swan & Brombacher ... dis 15 @ 20 %
Corkscrews ... dis 25 %
Corn Knives and Cutters.
Bradley's ... dis 10 %
Croquet.—Phineas Smith ... dis 40&10
Crow Bars.
Cast Steel ... ₩ ℔ 11c. net
Iron, steel points ... ₩ ℔ 6c
Crucibles.
Gautier & Co ... ₩ No. 5½c
Curling Irons ... dis 20&10 %
Curry Combs.
Hotchkiss' and Kellogg's, Iron and Brass ... dis 20&10 %
Fitch's ... dis 15&10 %
Rubber ... ₩ doz, $9·00—dis 15 %
Schweitzer Mfg. Co ... dis 20 %
The Lawrence Curry Comb Co ... dis 20 %
Curtain Pins.
Silvered Glass ... old list dis 45&10 %
Cutlery.
American Table ... net list
American Pocket ... dis 25 %
Am. Pocket—Humason & Beckley Mfg. Co ... dis 20&10 %
Dippers.
Britannia ... per doz 7·50—dis 30 %; by bbl. dis 33⅓ %
Cocoa, Plain ... per doz $3·25—dis 20 %
" Rimmed ... per doz 3·75—dis 20 %
Dog Collars.
Embossed Gilt ... dis 20 %
Leather ... dis 20 %
Door Springs.
Gray's ... $7·50 ₩ doz—dis 50 %
Torrey's Patent ... $7·50 ₩ doz—dis 50 %
Palmer's Japanned No. 6 ... ₩ doz $5·00
" Coppered " ... " 6·00
" Silvered " ... " 8·00
Challenge.—
Japanned ... ₩ doz $4 00 @ 6 00
Bronzed ... ₩ doz 5 00 @ 7 00
Nickel Plated ... ₩ doz 6 50 @ 9 00
1 Gross lots ... dis 10 %
5 Gross lots ... dis 20 %
Drawing Knives ... dis 60 @ 60&10 %
Bradley's ... dis 25 %
Adjustable Handled ... dis 15 %
Drills.
Ingersoll's Ratchet ... dis 25 %
Moore's Triple Acting Ratchet ... dis 20 %
Whitney's Ratchet ... dis 20 %
Blacksmiths' ... each $7 75—dis 60&10 %
Drill Chucks.
The Danbury ... each 10·00—dis 25 @ 30 %
Drug Mills.
American Drug Mills ... dis 20 %
Egg Beaters.
Monroe's ... 8 in. 10 in.
Per doz $8·00 9·00 ... dis 10 %
Dover ... ₩ doz net $6·00
National ... ₩ doz $4·50—dis 20 %
Peerless ... ₩ doz $4·00—dis 10 %
Emery.
Genuine Chester—Regular Nos ... ₩ ℔ 7c; Flour and FF ... ₩ ℔ 4c ... dis 10 %
Washington Mills—Regular Nos ... ₩ ℔ 8c
" Flour ... ₩ ℔ 5c
Enameled and Tinned Ware.
Kettles ... dis 35 %
Sauce Pans ... dis 25 %
Glue Kettles ... dis 20 %
Tinned Saucepans ... dis 25 %
Escutcheons.
Brass Thread ... dis 60&10 %
Wood ... dis 25 %
Faucets.
Cork Lined, Wood ... dis 60&10 %
Fenn's ... dis 50 %
" Cork Stops ... dis 40 %
Star ... dis 55&10 %
Frary's Patent Petroleum ... dis 15&10 %
Taylor's Pattern " ... dis 20&10 %
Wood and Metallic ... dis 40 %
Felloe Plates ... ₩ ℔ 14c; dis 10 %
Files.
American File Co ... $5 00 to £ currency—dis 10 %
Nicholson ... $5 00 to £ currency—dis 12½ %
Hartford File Co ... $5 50 to £ currency—dis 10 %
Newbould's ... 5 25 to £ gold
Rothery's ... $5 to £ currency
J. & Riley Carr's Files and Rasps ... 5 50 to £ gold
Stubs' ... 8 50 @ 9 00 to £ gold
Butcher's ... 5 50 to £ gold
Walter Spencer & Co.'s "Diamond" ... 5 25 to £ gold
Spear & Jackson's ... 5 00 to £ gold
Hargreaves, Smith & Co.'s ... 5 00 to £ gold
Jowitt's ... 5 25 to £ gold
"Western" ... 5 00 to £ net
W. K. & C. Peace's "Imperial" ... 5 25 to £ gold
R. Ibbotson ... 5 00 to £ gold
Beam & Murray, "Cyclops" ... 4 85 to £ gold
Fisher's ... 4 75 to £ gold
Goodlad's ... 4 00 to £ gold
Moss & Gamble ... 5 25 @ 5 50 to £ gold
Thos. Turner & Co. (Peter A. Frasse & Co.) ... 5 00 to £ gold
" " Horse Rasps ... 5 50 to £ gold
"Philo Sheffield," P. T. Co ... 5 00 to £ gold
Floral Tools ... dis 25 %
Fluting Machines.
Mrs. Coles, 7 inch rolls ... 6 50
" " 5 " " ... 5 50
Knox, with 4-inch Rolls ... 5 00 each dis 12½ %
" " 6 " " ... 6 00 each dis 12½ %
O. K ... 6 50 each net
Peerless, 4-inch Rolls ... 4 00 each net
" 5 " " ... 4 75 each net
Excelsior, No. 1 ... 4 75 each net
" No. 2 ... 6 50 each net
Diamond ... 7 50 each net
Climax 7-inch Rolls ... 8 00 each net
" 4½ " ... 6 50 each net
Empire ... 4 00 each net
Eureka. No. 1, 7-inch Roll ... 8 00 each net
" No. 2, 5-inch Roll ... 6 00 each net
K. F. M., 4½-inch Roll ... 5 50 each dis 15 %
" 6-inch Roll ... 6 00 each dis 15 %
Myers Fashion Fluter, 4½-inch Rolls ... 3 00 each net
" Convex Brass Fluter, Sad Iron attachment ... $1·75
Domestic Fluter ... $1·75 each net
Fairy, Self-Heater ... 8 00 each net
Geneva Hand Fluter ... $15 00 per doz net
Champion, 6 inch rolls ... $6 00 each dis 10 %
" 4 inch rolls ... $5 00 each dis 10 %
Fluting Scissors ... dis 20&10 %
Forges.
Keystone Portable Forge Co.'s ... dis 20 %
"Empire" (W. P. Kellogg & Co.) ... dis 20 %
Forks.
Hay, Manure & Spading ... dis 25 %
Plated A 1 ... dis 40, 10&5 %
Freezers.
Champion ... dis 33⅓
Torrey's ... dis 50 %
Fry Pans.—P. S. & W.
Tinned ... dis 30 %
₩ doz ... $3·00 3·25 3·62 4·00 4·50 5·00 5·50 6·00 7·50
No ... 0 1 2 3 4 5 6 7 8
Smith, Burns & Co., "Excelsior" Polished ... dis 35 %
₩ doz ... $3·70 4·00 4·70 5·30 6·00 7·00 8·00 9·00
No ... 1 2 3 5 6 7 8
Gas Stoves.
Tiff & Howard ... dis 20 %
Gauges.
Marking ... dis 45&10 %
Wire ... dis 10 %
Grind Stones.
J. F. Green & Bro ... dis 20 %
Grind Stone Fixtures ... dis 50&10 %

Hammers.
Emmet Hammer Co ... dis 25 %
Humason & Beckley Mfg. Co ... dis 16⅔&10 %
Maydole's, new list ... dis 5 %
Cheney's ... new list net
Verree ... dis 5 %
Yerks & Plumb ... dis 12½ %
Minot & Co ... dis 15 %
Magnetic Tack ... dis 20&10 %
Warner's ... list net
Hand Cuffs and Leg Irons.
Tower's ... dis 25 %
Handles.
Wrought Chest ... dis 60&10 %
Flush Chest ... dis 60&10 %
Lifting ... dis 60&10 %
Coffin ... dis 50&10 %
Saw and Plane ... dis 20&10 %
Hammer and Hatchet ... dis 10 %
Greensboro', Axe, Pick, Hammer, &c ... dis 10 %
Woolworth Axe, Pick and Sledge ... dis 10 %
Brad Awl ... per gross $3 50—dis 20&10 %
Hickory Firmer Chisel, ass'td " 5 25—dis 10&10 %
" " " large " 6 25—dis 10&10 %
Apple " " ass'td " 6 00—dis 10&10 %
" " " large " 7 00—dis 10&10 %
Socket " " ass'td " 3 50—dis 10&10 %
" Framing " " " 6 00—dis 10&10 %
File ... " " 3 50—dis 10&10 %
Auger ... " " 5 50—dis 10&10 %
" large " 6 50—dis 10&10 %
Hangers.
Barn Door ... dis 65&10 %
"Anti-Friction" (Rider, Wooster & Co.) ... dis 30 %
Novelty ... dis 30 %
Harness Snaps.
Henshaw's ... dis 25&10 %
Judd's ... dis 40 %
Fitch's ... dis 30 %
Hotchkiss' ... dis 10 %
Andrews' ... dis 25 %
Sargent's ... new list dis 50&10 %
New York Wire ... dis 20&20 %
Hatchets.—Isaiah Blood ... dis 10 %
Shingling, Nos. 1 2 3 ... ₩ doz $7 50 8 00 8 50
Claw, " 1 2 3 ... ₩ doz 8 50 9 00 9 50
Lathing, " 1 2 3 ... ₩ doz 7 50 8 00 8 50
Hunt's ... dis 10 %
Shingling, Nos. 1 2 3 ... ₩ doz $7 25 8 00 8 75
Claw, " 1 2 3 ... ₩ doz 7 75 8 50 9 25
Lathing, " 1 2 3 ... ₩ doz 7 50 8 25 9 00
Hurd's ... dis 20 %
Shingling, Nos. 1 2 3 ... ₩ doz $8 00 8 50 9 00
Claw, " 1 2 3 ... ₩ doz 9 00 9 50 10 00
Lathing, " 1 2 3 ... ₩ doz 8 00 8 50 9 00
Newark's Edge Tool Co.'s ... dis 25 %
Shingling, Nos. 1 2 3 ... ₩ doz $6 50 7 00 7 50
Claw, " 1 2 3 ... ₩ doz 7 25 7 75 8 25
Lathing, " 1 2 3 ... ₩ doz 6 50 7 00 7 50
Yerkes & Plumb ... dis 12½ %
Shingling, Nos. 1 2 3 ... ₩ doz $7 00 7 50 8 00
Claw, " 1 2 3 ... ₩ doz 7 50 8 00 8 50
Lathing, " 1 2 3 ... ₩ doz 7 00 7 50 8 00
Simmon's ... dis 15 %
Shingling, Nos. 0 1 2 3 ... ₩ doz $7 50 8 00 8 50 9 00
Claw, " 1 2 3 ... ₩ doz 9 00 9 50 10 00
Lathing, " 1 2 3 ... ₩ doz 8 00 8 50 9 00
Broad, " 1 2 3 ... ₩ doz 9 00 10 00 12 00
" " 4 5 6 ... ₩ doz 14 00 16 00 18 00
" " 7 8 ... ₩ doz 20 00 22 00
Elephant ... dis 25 %
Shingling, Nos. 1 2 3 ... ₩ doz $8 00 8 50 9 00
Claw, " 1 2 3 ... ₩ doz 9 00 9 50 10 00
Lathing, " 1 2 3 ... ₩ doz 8 00 8 50 9 00
J. P. Verree & Co ... dis 5 %
Shingling, Nos. 1 2 3 ... ₩ doz $7 00 7 50 8 00
Claw, " 1 2 3 ... ₩ doz 7 50 8 00 8 50
Lathing, " 1 2 3 ... ₩ doz 7 00 7 50 8 00
Underhill's ... dis 10 %
Shingling, Nos. 1 2 3 ... ₩ doz 7 25 8 00 8 75
Claw, " 1 2 3 ... ₩ doz 7 75 8 50 9 25
Lathing, " 1 2 3 ... ₩ doz 12 00 11 00 13 00
Hinges.
Gate, Western ... ₩ doz $6·25—dis 60&10 %
" N. E ... ₩ doz 11·25—dis 60&10&10 %
" N. Y. State ... ₩ doz 7·20—dis 60&10 %
Rolled Plate ... dis 75 %
" Raised ... dis 75 %
Wrought Strap and T ... dis 25&10 %
Providence Plate. 6 and 8 in. list 11c.; over 8 in. list 9½c. ... dis 25&10 %
Screw Hook and Strap ... 8, 10, 12 in. 7½c; 14 to 36 in. 5⅞c ... net
Heavy Welded Hook ... 8 to 12 in., 9c; 14 in. & up, 8½c ... dis 10 %
Screw Hook and Eye ... ¾ to 1 in., 9½c; ⅝ in. 10½c; ½ in. 12½c ... net
Hoes.
Solid Shank, C. S ... ₩ doz $8 00—dis 30 %
Socket ... ₩ doz 9 00—dis 30 %
Riveted Eye ... ₩ doz 5 00—dis 30 %
Grub ... dis 20 %
Planters'—Winsted ... add 10 %
Scovill ... add 33⅓ %
Scovill Pattern (Winsted) ... add 20 %
Hooks.
Harness ... dis 60, 10&5 %
Bird Cage ... dis 70&10 %
Cotton ... dis 50 %
Belt ... dis 50&10 %
Clothes Line ... dis 60&10&10 %
Bench—Skinner's ... per doz $8 00, dis 30&10 %
Bench—Hotchkiss' $5 00 ₩ doz ... dis 10 %
Bench—Weston's No. 1, $6·00; No. 2, $7·00 per doz net
" —McGill's ... $3 00 per doz, dis 10 %
Wardrobe, Japanned ... new list dis 60, 10&10 %
Hat and Coat " ... new list dis 60, 10&10 %
Wrought Staples and Hooks and Staples ... dis 70&10 %
Screw Hooks and Eyes, revised list ... dis 70, 10&10 %
Grass ... dis 25 %
Whiffletree—Patent ... dis 30 %
Hooks and Eyes—Malleable Iron ... dis 55 %
" " Brass ... dis 55 %
Horse Nails.
Putnam's.
No ... 5 6 7 8 9 10
32c 28c 26c 25c 24c 23c
In lots 2000 lbs. dis. 5 %.
Ausable Horse Nail Co.
No ... 5 6 7 8 9 10
Ausable ... 30c 27c 25c 24c 23c 22c
Pointed and Polished ... 31c 28c 26c 25c 24c 23c
Pointed and Blued ... 32c 29c 27c 26c 25c 24c
In lots of 1000 lbs., 5% discount.
Brundage.
No ... 5 6 7 8 9 10
29c 25c 24c 23c 22c 21c
In lots of 500 lbs., dis. 5 %.
American Pressed.
No ... 5 6 7 8 9 10
22c 20c 20c 20c 20c 20c
In lots of 1000 lbs. dis 5 %.
Perkins Finished (ready to drive).
No ... 5 6 7 8 9 10
31c 28c 26c 25c 24c 23c
In lots of 1000 lbs. dis 5 %.
Buffalo Forged.
No ... 6 7 8 9 10
28c 26c 25c 24c 23c
Globe (Pointed and Polished).
No ... 5 6 7 8 9 10
31c 28c 26c 25c 24c 23c
In lots of 1000 lbs., 5 % discount.
National (Pointed and Polished).
No ... 5 6 7 8 9 10
Patent Finish ... 28 25 23 22 21 20
Extra " ... 30 27 25 24 23 22
In lots of 1000 lbs., dis 5 %.
Vulcan (Blued, pointed, ready to drive).
No ... 5 6 7 8 9 10
33c 30c 28c 27c 26c 25c
In lots of 500 lbs., 5 % discount.
" 1000 lbs 7½ % discount.
New London Horse Nails.
No ... 6 7 8 9 10
Great Western ... 27c 25c 24c 23c 22c
U B ... 29c 27c 26c 25c 24c
In lots of 1000 lbs., dis 5 %.
Star Brand ... ₩ ℔ 16c
Morgan ... 14c
Horse Shoes.
Burden ... ₩ keg, $5 85
R. I. Horse Shoe Co., Perkins Pattern ... ₩ keg, 5 85
" " R. I. Pattern ... ₩ keg, 6 35
Mule Shoes ... ₩ keg, 6 85
Ice Picks.
Iron ... ₩ gross $12 00 @ $16 00 net
White's ... per doz $2 50 dis 10 %
W. H ... per doz 1 00 dis 10 %
Dunlap's ... per doz 3 00 net
Kettles.
Brass ... ₩ ℔ 55c net
In lots of 500 ℔s ... ₩ ℔ 50c net
Knives.
Ames' Butcher Knives ... dis 20 %
" Shoe " ... dis 15 %
" Bread " ... ₩ doz $1·50—dis 15 %
Hay and Straw. "Wadsworth's" ... dis 20 %
Lothrop's Cocoa Handle Lap Bolster Butcher Knives ... dis 25 %
Knobs.
Carriage ... dis 60&10 %
Base—Common ... net
" Plush Tip ... dis 10 %
" Elastic End ... reduced list dis 10&10 %
Ladles.
Melting ... dis 20 %
Lanterns.
Peerless ... dis 10 %
Brady's Patent ... dis 10 %
Ætna ... dis 10 %
Yankee ... dis 10 %
De Beque ... dis 10 %
Lemon Squeezers.
Porcelain Lined ... per doz $7 00, dis 10 %
Lines.
Linen Fish ... dis 10&10 %
Cotton Chalk ... dis 40 %
Silver Lake Chalk ... dis 10&10 %
Mason's ... dis 10&10 %
Galvanized Wire Clothes ... $1 per 100 ft. dis 30 %
Locks and Latches.
Cabinet—Eagle ... dis 25 %
Cabinet—Gaylord ... dis 25 %
Langstroth & Crane ... dis 40 %
Trunk ... dis 10 %
Continental ... dis 15 %
Shepardson's ... dis 20 %
Romer's Padlocks ... dis 15 %
Scandinavian Jail ... dis 10 %
American Lock Co ... dis 33⅓ %
Plate ... dis 25 %
Pad ... new list dis 50, and 2 % for cash

Barnes & Deitz ... dis 25 %
Yale Lock Co ... dis 40 %
Sargent & Greenleaf ... dis 20 %
Trenton; Branford; Norwich; Russell & Erwin; Norwalk; Nashua; Mallory, Wheeler & Co.; P. & F. Corbin; Parker & Whipple; Jacobus & Nimick Mfg. Co. ... New list dis 45 %. 2 % extra for cash.
Mallets.
Hickory and Lignumvitæ ... dis 20 %
Meat Cutters.
Dixon's (P. S. & W.) ... dis 10 %
No ... 1 2 3 4
₩ doz ... $14 00 $17 00 $19 00 $30 00
Hales' ... dis 25 %
No ... 11 12 13
₩ doz ... $27 00 $33 00 $42 00
Miles Challenge ... dis 30 %
No ... 1 2 3
₩ doz ... $22·00 $30·00 $40 00
Perry's Champion (P. S. & W.) ... dis 10 %
No ... 200 300 400
₩ doz ... $22 00 $27 00 $40 00
Woodruff's (P. S. & W.) ... dis 10 %
No ... 100 150
₩ doz ... $15 00 $18 00
American ... dis 25 @ 25&5 %
No ... 1 2 2½ 3 4 B 5
Each ... $6·00 $9·00 $12·00 $15·00 $30·00 $60·00 $75·00
Molasses Gates.
Stebbins' ... dis 65&10 %
Tinned ends ... dis 40&10 %
Patent Self-Measuring ... per doz $42 00—dis 20&10 %
Bush's ... dis 20 %
Lincoln's ... dis 50&10 %
Mortars and Pestles.
Iron ... net
Mouse Traps.
Wood Choker ... ₩ doz holes, 16 @ 18c
Round, Wire ... ₩ doz $1 40 to 2 00 net
Square, " ... ₩ doz 2 00 to 2 50 net
Cage, " ... ₩ doz 2 50, dis 10 %
Mowers, Lawn.
Excelsior ... dis 25 %
Nails ... 10d $3 75 @ 3 90
Nail Pullers.
Capewell's Giant ... per doz $30 00 net
Nuts and Washers.
Nuts ... large, 6c; small, 8c off list.
Washers ... large, 8c; small, 10c off list.
Oil Stones.
Washita No. 1 ... ₩ ℔ 22c
White Slips ... ₩ ℔ 45c
Washita No. 2 ... ₩ ℔ 17c
Arkansas ... ₩ ℔ 1 25
Hindostan ... ₩ ℔ 6c dis 10&10 %
" Slips ... ₩ ℔ 10c dis 10&10 %
Oilers.
Miller's Zinc ... dis 30 %
" Brass and Copper ... dis 25 %
Olmsted's ... new list dis 25&10 %
Broughton's ... dis 25&5 %
Malleable ... per doz $5 00 dis 10 %
Common Tin ... dis 30&10 %
" Zinc ... dis 30&10 %
" Brass and Copper ... dis 30&10 %
Prior's ... dis 30&10 %
Ox Shoes.
Concave ... ₩ ℔ 13c net
Ox Balls ... dis 60&10 %
Pencils
Rope's Carpenters' ... dis 30&10 %
Dixon's Lead ... ₩ gross $4·50 net
" Lumber ... ₩ gross 9·00 net
Picture Nails and Knobs.
Brass Head ... dis 60&10 %
Richards' Patent ... dis 40 @ 40&10 %
Judd's ... dis 60&10 %
Pinking Irons ... per doz $2 75—dis 65 %
Planes.
Auburn Tool Co.'s ... dis 30&10 %
Ensenore, Bench ... dis 50 %
Chapin's, 1st quality ... dis 25&10 %
Chapin's 2d quality ... dis 33⅓&10 %
Greenfield Tool Co ... dis 25&10 %
"New York" ... dis 40 %
Sandusky Tool Co., 1st quality ... dis 35 %
" " 2d " (Ogontz) ... dis 50 %
Ohio Tool Co., 1st quality ... dis 35 %
" " 2d quality (Sciota) ... dis 50 %
Owasco Tool Co., 1st quality ... dis 30&10 %
" " 2d quality ... dis 50 %
Howland's. 1st quality ... dis 30&10 %
" 2d quality (Cayuga) ... dis 40&10 %
Bailey's Patent Adjustable ... dis 20&10 %
Plane Irons, Butcher's ... $5 50 to £ gold—new list
" Auburn Tool Co.'s ... dis 25 %
" Chapin's ... dis 10&10 %
" Greenfield Tool Co ... net list
" Ohio Tool Co ... dis 10 %
" Spear & Jackson's ... 5 50 to £ gold—new list
" Sandusky Tool Co ... dis 10 %
Plow Bits, Greenfield Tool Co ... dis 10 %
Pliers.
Button's Patent ... dis 33⅓ %
Plumbs and Levels.
Chapin's ... dis 66⅔&10 %
Standard Rule Co.'s New Adjustable ... dis 60&10 %
Standard Rule Co.'s Non-Adjusteble ... dis 60&10&10 %
Stanley R. & L. Co.'s Pat. Adjustable ... dis 60&10 %
" " " Non-Adjustable ... dis 60&10&10 %
Pocket Levels ... dis 50&10 %
Johnson's Patent Adjustable ... dis 60&10 %
Pulleys.
Hot House and Tackle ... dis 60&10 %
Jap'd Screw ... dis 60&10 %
Brass Screw ... dis 60&10 %
Jap'd Side ... dis 60&10 %
" Clothes Line ... dis 60&10 %
Hay Fork ... per doz $4 50 @ 5 00, dis 10 %
Pumps.
Douglas Cistern, etc ... new list dis 25 %
" S. & F ... new list dis 20 %
Union Mfg. Co's. Cistern and Pitcher ... dis 25 %
" " " Rams ... dis 20 %
" " " Garden Engines ... dis 10 %
Cucumber (Burlingham & Purdy)—
6 ft. No. 3, with 12 ft. pipe ... $4·00 net
6 ft. No. 1, with 12 ft. pipe ... 4·50 net
From 6 to 36 ft. add 20 cents per ft.
Pipe, 8c. per ft.; Coupling, 20c. per ft.
Punches.
Belt or Drive ... dis 25 %
Spring ... dis 20 %
Rail, Sliding Door.
Wrought Brass ... ₩ ℔ 40c., dis 10 %
Iron, Painted ... dis 60&10 %
Rakes.
Cast Steel ... dis 30 %
$8 00 9 00 10 00 11 00
8 10 12 14 teeth.
Malleable ... dis 30 %
$5 00 5 50 6 00 6 50
9 11 13 15 teeth.
Razor Straps.
Evan's ... dis 25&10 %
Genuine Emerson ... dis 25 %
Imitation Emerson ... ₩ doz $2·75—dis 35 %
Hunt's ... dis 35 %
Chapman ... dis 10 @ 15 %
Torrey's ... dis 10&10 %
Saunder's ... net
Rivets.—Old Colony.
Iron and Tinned ... dis 30 %
In bulk ... dis 7½ %
Copper Rivets and Burrs ... new list dis 30 %
Rivet Sets ... net
Rods.
Stair ... new list dis 32½ %
American Patent ... dis 30 %
Rollers.
Barn Door ... revised list dis 60, 10&10 %
Novelty ... dis 10 %
Rope. Manufacturers' List.
Manila ... ⅜ inch and larger ₩ ℔ 16 c
" ... ¼ inch ₩ ℔ 16½c
" ... ⅛ and 5-16 inch ₩ ℔ 17 c
" Lath Yarn, Fine Tar'd ... ₩ ℔ 17 c
" Hay Rope ... ₩ ℔ 16½c
Sisal ... ⅜ inch and larger ₩ ℔ 13 c
" ... ¼ inch ₩ ℔ 13½c
" ... ⅛ and 5-16 inch ₩ ℔ 14 c
" Hay Rope ... ₩ ℔ 13½c
Rules.
Chapin's Boxwood ... dis 66⅔&10 %
" Ivory ... dis 50&10 %
Hubbard & Curtiss Mfg. Co ... dis 60&20 %
Stanley Rule and Level Co.'s Ivory ... dis 50&10 %
" " " Boxwood ... dis 60&10&10 %
Standard Rule Co.'s Boxwood ... dis 60&10&10 %
" " " Ivory ... dis 50&10 %
Sad Irons.
... ₩ ℔ 4c net
Sad Iron, Nickel Stand attached ... ₩ ℔ 9c
Sand Paper ... dis 15 %
Beader & Adamson's (Flint) 00 to 1½ ... $4 25 ₩ ream
" " " 2, 2½ & 3 ... 4 75 "
Assorted ... 4 25 "
Star ... ₩ ream $3 25
Emery ... ₩ ream $6 50 @ 11 50
H. B. & M. Roman Flint ... dis 15 %
Cowdin Mfg. Co ... dis 7½ @ 10 %
Diamond Flint, 00 to 1½ ... per ream $4 25
" " 2, 2½, 3 and assorted ... " 4 75
" Emery Paper ... per ream $6 50 to $11 50
Sash Cord.
Common ... ₩ ℔ 20 @ 22c. net
Silver Lake Flax ... ₩ ℔ 55c. net
" " Cotton ... ₩ ℔ 65c. net
Sash Locks.
Clark's, Nos. 1 and 2 ... dis 33⅓ %
Ferguson's ... dis 33⅓ %
Norwich ... dis 15 %
Walker's ... list net
Sash Weights.
Solid Eyes ... ₩ ℔ 2½c
Sausage Fillers.
Perry's (P. S. & W.) ... dis 15 %
No ... 1 0
₩ doz ... $15 00 $21 00
Sausage Stuffers.
Miles ... ₩ doz $20—dis 10 %
Stow ... ₩ doz No. 1, $15; No. 0, $21—dis 10 %
Saw Frames ... dis 10&10 %
Saw Rods ... $10 list, dis 10&10 %
Saws.
Spear & Jackson's old pattern ... $4 50 to £ gold
Spear & Jackson's American Pattern ... $3·55 to £ gold

John Spear ... $3 60 to £ gold
Am. Saw Co ... new list
Perforated Cross Cuts, all kinds ... 68c ₩ foot
Inserted Tooth ... dis 10 %
All else ... dis 12½ %
Disston's Circular ... dis 20 %
" Mill ... dis 25 %
" Cross Cut ... dis 15 %
" other kinds ... dis 12½ %
Livingston's Framed Wood ... dis 10 %
Livingston's Butcher and Kitchen ... dis 10 %
H. W. Peace's Circulars ... dis 10 %
Other kinds ... dis 10 %
Wm. McNiece's Hand, Cross Cut and Circular ... new list dis 15 %
Wm. McNeice's Patent Pole Pruning Saw ... dis 10 %
" " " Compass Saw ... net.
E. M. Boynton's Lightning ... dis 40 % for immediate cash
" " Others ... dis 15 %
Wheeler & Clemson Mfg. Co.'s Hand ... dis 15 %
" " " " Cross-Cut ... dis 30 %
Saw Sets.
Stillman's Genuine ... ₩ doz $5·00—dis 10 %
" Imitation ... ₩ doz 5·25—dis 10&10 %
Aiken's Pattern ... ₩ doz 7·00—dis 25 %
Hart's Patent ... dis 15 %
Nash's ... dis 20&10 %
Bemis' ... dis 10 %
Aiken's Genuine ... ₩ doz $15·00—dis 25 %
Hotchkiss' ... ₩ doz 5·5.—dis 10 %
Common Lever ... per doz $2 00—dis 10&10 %
Leach's ... dis 15 %
Foster's ... dis 25 %
Scales.
Hatch ... dis 25 %
Tea ... dis 25 %
Turnbull's ... dis 20 %
Brown's ... dis 25&5 %
Fairbanks' ... new list dis 15 @ 20 %
Howe's ... dis 15&5 %
Shattuck's Counter and Union ... dis 15 %
Chatillon's Grocers' ... dis 25 %
Eureka ... dis 25 %
Scale Beams ... dis 25&10 %
No. 1 800 to 1200 lbs ... 90c ₩ cwt
No. 2 " " ... 75c ₩ cwt
Scrapers.
Box, 1 Handle ... per doz $6·25, dis 10 %
" 2 " ... per doz 7·50, dis 10 %
Foot ... dis 60 & 10 %
Ship ... per doz $3 00 net
Screws.
American list of Jan. 1, 1874.
Flat Head Iron ... dis 52½ %
Round Head Iron ... dis 50 %
Flat Head Brass ... dis 52½ %
Round Head Brass ... dis 50 %
Round Head Silver Capped ... dis 35 %
Hand Rail ... dis 55&10 %
Coach or Lag ... dis 30&10 @ 40 %
Coach, Patent Gimlet Point ... dis 15 %
Bed ... list net
Japanned ... dis 40 %
English—Nettlefold & Chamberlain's Flat Head Iron ... dis 52½&10 %
Machine—Flat Head, Iron ... dis 60 %
" " Brass ... dis 10 %
Round Head, Iron ... dis 55 %
" " Brass ... net
Bench—Iron ... dis 60, 10&10 %
" —Wood ... dis 15 %
Hand ... dis 25&10 %
Jack—Bell Bottom ... dis 15 %
Scythes.
Blood's German Steel, Grass ... ₩ doz $9 00
" Cast " " ... ₩ doz 10 00
" Silver " " ... ₩ doz 11 00
" German " Grain ... ₩ doz 13 00
" Cast " " ... ₩ doz 14 00
" Red Rover ... 12 00
" Young America ... 9 50
" Silver Clipper ... 12 63
Scythe Snaths ... dis 20 %
Sieves.—Mann's Patent ... dis 25 %
Shears.
Cast Steel ... dis 65&10 %
Cast Iron ... dis 25&10 %
Seymour's ... dis 60&10 %
Shovels and Spades.
Ames ... new list dis 12½ %
Rowland's ... dis 30 %
Old Colony ... new list dis 10&5 %
Middleboro' Shovel Co ... new list dis 12½ %
Dunning's ... dis 20 %
Shovels and Tongs.
Iron Head ... list net
Brass Head ... dis 5 %
Polished Steel ... new list dis 15 %
Skates.
Barney & Berry's ... dis 25 %
N. Y. Club ... ₩ pair $2·75
B. & B. Club ... " 3·50
All Clamp ... " 4·25
Rink ... " 8·00
Florence Club ... per pair $3·50—dis 25 %
" Steel ... per doz $9 net
Slates.
Square Frames, Round Cornered, by case ... dis 65&10 %
Less than a case ... dis 55&10 %
Oval Frames, by case ... dis 40 @ 40&10 %
Less than a case ... dis 30 %
Spoke Shaves.
Iron ... dis 33⅓&10 %
Wood ... dis 30 %
Bailey's ... dis 10&10 %
Spoons.
Iron ... new advanced list, dis 10 %
By the case ... dis 20 %
Britannia ... dis 45&10 %
Rogers & Bro., A 1 ... dis 40, 10&5 %, cash
Derby Silver Co ... dis 50 & 5 %
German Silver ... revised list dis 30 %
Tinned (P. S. & W.)—
Teas ... $1·50 ₩ gross, net
Tables ... 2·75 " net
Stocks and Dies.
... dis 15 %
Stove Polish.
Gem ... ₩ gross $5 00, dis 15 %
Joseph Dixon's ... ₩ gross, 6 00
Gold Medal ... ₩ gross $6 00 dis 15 %
Squares.
Steel ... dis 50 %; full cases, dis 50&10 %
Iron ... dis 50 %; full cases, dis 50&10 %
Nickel Plated ... add $2 50 @ $4 00 ₩ doz net
Try Squares and T Bevels ... dis 45&10 %
Star Try Squares and Bevels ... dis 30 %
Tacks.
Full Weight American Iron ... dis 45&7½ %
Half Weight American Iron ... dis 72½&7½ %
Carpet, new list ... dis 7½ %
Brads American Half Weight ... dis 50&7½ %
Finishing Nails ... ½ ⅝ ¾ 1 1¼ in. and over
₩ ℔ ... 25c 20c 18c 14c 12c dis 7½ %
Trunk and Clout ... ½ ⅝ ¾ 1 1¼ in. and over
₩ ℔ ... 25c 20c 18c 14c 12c dis 7½ %
Copper Tacks ... ₩ ℔ 50c—dis 7½ %
Iron Shoe Nails, ₩ ℔ 4-8 and longer, 9½c; 3½-8, 10c ... dis 7½ %
Double Pointed ... new list dis 33⅓&10 %
Tapes, Measuring.
American Flask and Cap Co ... dis 20 %
Eddy's ... dis 20 %
Thermometers.
Tin Case ... dis 50&5 %
Toe Calks.
... ₩ ℔ 13c net
Tobacco Cutters.
Champion ... dis 20 %
Peck, Stow & Wilcox ... dis 10 %
Morse's ... ₩ doz $12·00—dis 10&10 %
Wood Bottom ... per doz $12—dis 33⅓ %
All Iron ... per doz $12—dis 33&10 %
Tinners' Tools and Machines.
P. S. & W ... list net
Traps.
Newhouse ... dis 20 %
Hotchkiss ... dis 20&10 %
Peck, Stow & Wilcox ... dis 30 %
Blake's Patent ... new list dis 25 %
Trowels.
Lothrop's Brick and Plastering ... dis 10 %
Disston's Plastering ... dis 12½ %
Disston's Brick ... dis 12½ %
Rose's Brick ... dis 5 %
Brades' Brick ... gold. dis 10 %
Worrall's Brick and Plastering ... dis 20 %
Garden ... dis 25 %
Tryers.
Butter and Cheese ... dis 25 %
Ventilators, Double Cone.
Keystone Portable Forge Co ... dis 25 %
Vises.
Trenton Vises, Solid Box.
30 to 160 lbs ... 16c
160 and over ... 19c
Peter Wright's ... ₩ ℔ 15½c. gold
Wilson's Solid Box ... dis 15 %
30 to 160 lbs ... 18c
160 and upward ... 22c
Wilson's Parallel ... dis 30 %
Backus & Union, Parallel ... dis 25 %
Buffalo, Parallel ... new list dis 20 %
Fisher & Norris' Double Screw Parallel ... dis 15&10 %
Trenton Parallel ... dis 15 %
Merrill's Parallel ... dis 15 %
Parker's ... dis 20 %
Bonney's Saw Filers ... dis 20 %
Stearn's Saw Filers ... dis 30 %
Wheel Barrows.
Pugsley & Chapman ... dis 25 %
Wheel Heads.
Brass Bushed ... per doz $3 50 net
Well Wheels.
Revised list ... dis 60&10 %
Wire.
Brass and Copper ... list
Bright and Annealed ... Nos. 0 @ 18 dis 37½ @ 42½ %
" " ... " 19 @ 26 dis 47½ @ 52½ %
" " ... " 27 @ 36 dis 52½ @ 57½ %
Coppered ... " 0 @ 18 dis 27½ @ 32½ %
Galvanized, Nos. 0 to 6 ... market list dis 2½ %
Galvanized, Nos. 7 to 18 ... market list dis 12½ %
Tinned ... dis 20 @ 25 %
Cast Steel ... 5 @ 10 %
Tinned Broom Wire ... dis 25 @ 30 %
Galvanized Telegraph, Nos. 8 and 9 ... ₩ ℔ 8½c @ 9½c
" " " 10 and 11 ... ₩ ℔ 9½c @ 10½c
" " " 12 ... ₩ ℔ 10c @ 11c
Annealed Fence. Nos. 8 and 9 ... dis 37½ @ 42½ %
" Grape, " 10 to 14 ... dis 37½ @ 42½ %
Fence Staples ... ₩ ℔ 8½ @ 9 %
Stubs' Steel Wire ... $7 00 to £ gold
Judd's Picture Wire ... dis 10 %

Wrenches.

American Adjustable ... dis 45 %
Baxter's Adjustable "S" ... dis 20 %
" Diagonal ... dis 20 %
Collins & Co.'s ... dis 45 %
Coes' Genuine ... dis 40&5 %
" Pattern (Wrought) ... dis 50 %
" " (Malleable) ... dis 60&10 %
Lindsay's Patent ... dis 25 %
Taft's Pattern ... dis 70 %
Davis' Patent Duplex ... new list dis 25 %
Bemis & Call's Patent Combination ... dis 20&5 %

Wringers.

Providence ... ⅌ doz $58 00
Universal—Extra ... ⅌ doz 58 00
Novelty ... ⅌ doz 58 00
Sherman ... ⅌ doz 58 00
Reliance ... ⅌ doz 58 00
Monitor ... ⅌ doz 58 00
King ... ⅌ doz 58 00
Crown ... ⅌ doz 58 00
Eureka ... ⅌ doz 58 00
Independent ... ⅌ doz 58 00

TIN WARE AND TRIMMINGS.

STAMPED TIN WARE, dis 5 @ 10 %.
COMMON STAMPED WARE, &C.

Bucket Covers.

Quarts	½	1	2	3	4
Inch	4½	5 3-16	6 5-16	6¾	7 11-16
Per gross	$2·00	2·60	3·40	4·25	5·75
Quarts	6	8	10	12	
Inch	8¾	9¼	9½	10 9-16	
Per gross	$7·00	8·00	8·50	11·50	

Cake Box Covers.

	Small.	Medium.	Large.
Inch	11½	12¾	13¾
Per gross	$15·00	18·00	22·00

Pot Covers.

Inch	7¾	8¾	8¾	9¼	9¾	10¾
Per gross	$5·75	6·00	6·25	6·75	7·25	8·25
Inch	10¾	11¼	11¾	12¾	13¾	13¾
Per gross	$8·75	9·50	10·00	13·00	13·75	16·50

Pie, Dinner or Scolloped Plates.

Inch	6	7	8	9	10	11
Per gross	$4·00	·50	6·00	6·50	8·50	10·50

Deep Pie Plates.

Inch	9	10
Per gross	$8·50	10·50

Jelly Cake Pans.

Inch	9	10
Per gross	$7·50	10·00

Coffee Pot Covers.

Plain	1½	2	3	4	5	6 qts.
Inch	3	3¾	3¾	4¼	5	
Per gross	$1·15	1·40	1·60	2·00	2·75	3·00
Rimmed	2¾	3	3½	4	4½ inches.	
Per gross	$2·25	2·50	3·00	3·50	4·00	

T. K. Breasts only.

Inch	7½	8	8½	9	9½	10	10½	11	11½
Per gro.	$6·00	6·50	6·75	7·25	7·75	9·50	10·00	12·00	13·00

Grater Plates.

Sheet	⅜	½	1
Per gross	$3·00	6·00	11·50

Scolloped Cake Pans.

	Small.	Large.
Without Tubes ... per gross	$8·00	11·50
With Tubes ... "	10·50	14·00

Stamped Square Pans.

No.	½	1
Per gross	$7·50	14·50

Common Square Pans (One Sheet).
Per gross ... $12·50

Milk Skimmers (Plain or Pierced).
Per gross ... $4·00

Lettered Plates.

Inch	5½	6
Per gross	$3·25	4·00

Steamer Bottoms.
Add $1 per gross, or 10c. per doz. to list of Pot Covers.

Tin Stove Pipe Rings.

Inch	4	4½	5	5½	6	7
Plain ... per gro.	$4·50	5·00	5·50	6·00	6·50	7·50
Jap'd or Burn'd ... "	6·00	6·50	7·00	8·00	8·50	10·00

Coffee Boiler Lips.

	Small.	Large.
To Rivet ... per gross	$0·80	1·10
To Solder ... "	1·25	

Plain Stamped Water Dippers.

	½ pint.	Pint.	Quart.	2 quarts.	2½ quarts.
Per doz	·90	1·15	1·50	1·85	2·50

RETINNNED WARE, dis 20 @ 25 %.

Retinned Milk Pans.

Qts.	½	1	1½	2	3	3½	4	5	6	8	10	12
⅌ doz.	1·20	1·50	1·75	2·00	2·25	2·75	3·15	3·50	3·85	4·75	5·25	5·75

Dipper Bowls, Plain Stamped ... dis 20 @ 25 %

Pints	½	1	Quarts	1	2	2½
Per doz.	·50	·75	Per doz.	1·00	1·25	1·75

Dipper Bowls, Retinned ... dis 20 @ 25 %

Pints	½	¾	1	Quarts	1	2	2½
Per doz.	·75	·95	1·05	Per doz	1·40	1·75	2·25

Pans.

Dish Pans, Tinned ... dis 20 @ 25 %

Quarts	7	8	10	14	17	21	30
Per doz.	8·50	9·50	11·00	13·00	16·00	19·00	30·00

JAPANNED TIN WARE.

Cannisters, Common ... dis 10 %

Pound	½	1	2	3
Per doz	$1·10	1·60	2·50	3·25

Canisters, Hinged ... dis 10 %

Pound		1	2		
Per doz	$1·75	2·75	3·40	3·75	4·50

Candlesticks, Japanned ... dis 10 %

No	1	2
Per gross	$6·00	7·00

Cake Boxes, Round ... per nest, $2·25, dis 10 %
" Square ... per nest, 4·25, dis 10 %
Chamber Pails, Japanned (Smith, Burns & Co.) ... dis 10 %

Nos.	2	3	4	5
Green, per doz	$8·00	9·00	10·50	12·50
Oak "	$9·50	10·50	12·00	13·50

Dust Pans, Corrugated ... per gross, $22·00, dis 10 %
Box Graters ... per gross, $4·00, dis 10 %
Molasses Cups ... dis 10 %

Pint	½	1	2
Per doz	$1·25	·50	[illegible]

Lunch Boxes, per doz ... 7 in. $2·00; 8 in. $2 50; dis 10 %
Pepper Boxes Japanned ... dis 10 %
Per gross ... Small, $3·00; Large, $4·00
Toy Banks, House ... dis 10 %
Tea Trays, American Tea Tray Co. ... dis 15 %

No.	1	2
Per gross	$7·00	5·50

Toy Banks Gothic ... dis 10 %
No. ... 1
Per gross ... $3·50
Toy Cups, Straight ... dis 10 %

No.	1	2	3
Per gross	$4·00	3·50	3·50

Toy Cups, Flaring ... No. 1, $4·25; 2, $3·70 ⅌ gross, dis 10 %
Toy Pails, Covered ... dis 10 %
No ... 1
Per gross ... $4·50
Toy Rattles ... per gross, $2·25, dis 10 %
Trunks, Wire Handled ... per nest (5) $1·50, dis 10 %
Spittoons, Tin ... per gross, No. 2, $30, No. 3, $27, dis 10 %

PLANISHED TIN WARE.

Planished Coffee Pots, Round ... dis 25 @ 30 %

Each	·60	·75	·85	·95	1·15	1·25	1·30	1·40
Pints	1	2	3	4	5	6	7	8

Planished Tea Pots, Round ... dis 25 @ 30 %

Each	·70	·80	·95	1·05	1·25
Pints	2	3	4	5	6

Planished Tea Pots, Oval ... dis 25 @ 30 %

Each	·70	·80	·90	1·05	1·15	1·40	1·75
Pints	1	2	3	4	5	6	8

Planished Pepper Boxes, No. 1 ... per doz., $1·52
Planished Flour Dredges, No. 3, $2·10; 4, 2·45 ⅌ dozen.
Planished Round Coffee Biggins ... dis 25 %

Pints	2	3	4	5	6	8
Each	$1·00	1·10	1·20	1·40	1·60	2·00

Planished Oval Coffee Biggins ... dis 25 %

Pints	2	3	4	5	6	8
Each	$1·15	1·25	1·40	1·60	1·80	2·25

Planished Oval Chafing Dishes, Imperial Covers ... dis 25 %

Inch	10	12	14	16	18	20	22	24
Each	$3·85	5·00	6·25	7·60	9·00	11·50	15·00	16·50

Planished Oval Chafing Dishes, Low Covers ... dis 25 %

Inch	10	12	14	16	18	20
Each	$3·25	4·35	5·20	6·20	7·80	9·25

Planished Low Dish Covers ... dis 25 %

Inch	10	11	12	14	16	18	20
Each	$·70	·80	1·00	[illegible]	1·50	2·00	2·75

Planished Imperial Dish Covers ... dis 25 %

Inch	10	11	12	14	16	18	20	22	24
Each	$1·55	1·70	2·00	2·60	3·15	3·45	4·60	5·45	6·30

Planished Etnas, on Stands ... dis 25 %

Pints	1½	2	3	4	5
Each	$0·90	1·00	1·20	1·50	1·75

Planished Liquor Mixers ... dis 25 %

Nos.	0	1	2
Per doz.	$2·00	2·10	2·45

Planished Oval Melon Molds ... dis 25 %

Nos.	2	3	4	5	6	7	8	9
Each	$·60	·65	·70	·80	·90	1·00	1·15	1·35

Planished Oval Tumbler Warmers ... dis 25 %
To fit 1, 2, 3, and 4 O. G. Urns ... each, $2·50
Planished Oval O. G. Urns ... dis 25

Nos.	0	1	2	3	4	5	6	7	8
Each	$4·90	5·45	6·30	7·00	7·75	9·25	11·25	12·50	15·60

Planished Round Urns ... dis 25 %

Nos.	0	1	2	3	4	5	6	7
Each	$4·20	4·85	5·45	6·30	7·75	9·00	11·00	14·25

Planished Round Oyster Dishes, (Complete) ... dis 25 %

Nos.	1	2
Each	$2·10	2·80

Planished Oyster Dish Plates ... dis 25 %

Nos.	1	2
Each	$0·25	0·30

Oyster Dish Covers ... dis 25 %

Nos.	1	2
Each	$0·30	0·35

Tea Pot Handles—P. S. & W. ... dis 20 %

Stow's Patent Hollow Tea Pot Handles.
No. 1, Small 4½ inches ... per gross, $11·50
No. 2, Medium, 5¾ " ... " 12·50
No. 3, Large, 6½ " ... " 13·50
No. 4, Ex. Large, 7¾ in., for Wash Pitchers &c. ... " 18·00

Stow's Patent. New Pattern.
No. 25, Small, 4½ inches ... per gross, $11·50
No. 35, Medium, 5¾ " ... " 12·00
No. 45, Large, 6½ " ... " 13·00

Solid Iron. Tin Tipped.
No. 10, Small, 4½ inches ... per gross, $9·00
No. 15, Medium, 5¾ " ... " 9·50
No. 20, Large, 6½ " ... " 10·75

Stow's Patent Hollow Tea Pot Handles, Adamantine Bronze—P. S. & W.
No. 12, Bronzed and Tin-Tipped ... per gross, $13·50

Saucepan Handles. Or Best Malleable Iron.
P. S. & W. ... dis 20 %

Japanned.
No. 1, 5½ inches long ... per gross, $3·50
No. 2, 6 " ... " 3·75
No. 3, 6½ " ... " 4·00
No. 4, 7¼ " ... " 4·25
No. 5, 8 " ... " 4·50
No. 6, 9 " ... " 4·75

Tinned.
No. 1, 5½ inches long ... per gross, $4·25
No. 2, 6 " ... " 4·50
No. 3, 6½ " ... " 4·75
No. 4, 7¼ " ... " 5·25
No. 5, 8 " ... " 5·50
No. 6, 9 " ... " 5·75
Japanned ... per lb., ·16
Tinned ... " ·20

Iron Kettle Ears (P., S. & W.) ... dis 45 %
Half gross pairs in a package.

Tinned.

Nos.	1	2	3	4	5	6	7	8
Per gross pairs	·88c	$1·00	1·50	1·75	2·10	2·75	3·50	4·75

Black.

Nos.	1	2	3	4	5	6	7	8
Per gross pairs	·75c	88c	$1·35	1·50	1·75	2·25	2·75	4·00

Tinned Tea Kettle.

Nos.	4	5	6
Per gross pairs	$1·75	2·10	2·75

Extra Heavy Tinned Kettle Ears—French Pattern.

Nos.	1	2	3	4	5	6	7
Per gross pairs	$1·00	1·25	1·50	1·75	2·25	2·75	3·50

Malleable Iron Kettle Ears for Coal Hods, &c.
P., S. & W. ... dis 20 %
No. 10 Small ... ⅌ ℔, Tinned, 20c; Black, 16c
No. 20 Medium ... ⅌ ℔, " 20c; " 16c
No. 30 Large ... ⅌ ℔, " 20c; " 16c
No. 40 Extra Large ... ⅌ ℔, " 20c; " 16c
In cases of 100 lbs. each.

Milk Can or Boiler Handles—(P. S. & W.) 4½ in.. dis 25
Plain, 8c.; Jap'd, 9c.; Tinned, 16c. per lb.; Malleable Clips or Ears to match, Tinned ... 20c per lb.
Toilet Ware Handles—4½ inches (P. S. & W.) ... dis 35 %
Plain with drilled holes, per lb ... 9c
Plain with Cast " " ... 8c
Plumbers' Scrapers—(P. S. & W.) ... dis 25 %
Extra quality, length 6 in., per doz ... $4·00

METALS.

IRON.—DUTY Bars, 1 to 1½ cents per lb., Sheet, Band, Hoop and Scroll, 1½ to 1¾ cents per lb. Provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Pig, $7 per ton; Polished Sheets, 3 cents per lb.; Wrought Scrap, $8 per ton; Cast Scrap, $6 per ton. All subject to a reduction of 10 per cent. Railroad, 70 cents per 100 lbs. Boiler and Plate, 1½ cents per lb.

Pig Iron—AMERICAN.
Foundry No. 1 ... ⅌ ton, $30 00 @
Foundry No. 2 ... " 28 00 @
Gray Forge ... " 25 00 @ 27 00
White and Mottled ... "

SCOTCH.
Coltness ... "
Glengarnock ... " 39 00 @ 40 00
Eglinton ... " 37 00
Summerlee ... "

Bar Iron.
Am. Refined, at mill ... ⅌ ℔ 3c

Rails.
Welsh, gold ... ⅌ ton, 48 00 @ 50 00
American, at works, currency ... " @ 55 00
Old Rails, currency ... " 32 00

Scrap.
Wrought Scrap ... " 33 00 @ 35 00

Bar Iron from Store.

Common Iron.
⅜ to 2 in. round and square ... ⅌ ton, $ 65 00
⅝x9-16 in " " ... " 70 00
½ in. " " ... " 72 50
2¾ to 3 in. " ... " 70 00
1 to 6 in. wide x ⅜ and 1 in thick ... " 65 00
1¼ to 6 in wide x ¼ & 5-16 in. thick ... " 70 00
1 and 1½ in. x ¼ and 5-16 ... " 72 50

Swedish Iron
1¼x⅜ and ⅜ ... " 150 00
1½x⅜ to ⅝, and ¾ square ... " 145 00
1¾ to 5x⅜ to ¾ and ⅞ to 2-in. square ... " 140 00
6 to 8x⅜ and ⅜ ... " 155 0

Refined Iron.
⅜ to 2 in. round and square ... " 67 50
1 to 6 in. wide x ⅜ to 1 thick ... " 67 50
1¼ to 6 in. wide x ¼ and 5-16 thick ... " 72 50
1 and 1½ x ¼ and 5-16 ... " 72 50

Large Rounds.
2¼ to 2¾, round and square ... " 77 50
3, 3¼ and 3½ in ... " 82 50
3¾ and 4 in ... " 90 00
Rods—⅝ and 11-16, round and square ... " 70 00
½ and 9-16, " " ... " 72 50
7-16, " " ... " 80 00
⅜, " " ... " 85 00
5-16, " " ... " 90 00
¼, " " ... " 95 00
3-16, " " ... " 127 50

Sheet Iron.

	Common American and English.	R. G. American.	R. G. English.
Nos. 10 to 20 ... ⅌ ℔	4½ @ 4¾c	5½c	6c
21 to 24 ... "	4¾ @ 5c	6c	6c
25 to 26 ... "	5 @ 5¼c	6c	6c
27 ... "	5¼ @ 5½c	6¼c	6¼c
28 ... "	5¾c	6½c	6½c

Galvanized, 1 to 20, prime, ⅌ ℔ 10; 2d quality ... ⅌ ℔ 9c
" 21 to 24 " " 11 " ... " 10c
" 25 to 26 " " 12 " ... " 11c
" 27 " " 13 " ... " 12c
" 28 " " 14 " ... " 13c
Patent Polished ... " 15 @
Russia, Nos. 8 to 16 ... ⅌ ℔ 18c
" Stained, No. 1 ... " 17c
Belgian ... " 12c
One piece Corrugated Sheet Iron Elbows.

CHARCOAL IRON.

4½	5	5½	6	7 inch.
$3·50	3·50	4·50	5·25	6·50 per doz.

RUSSIA IRON.

5	5½	6	7 inch.
7·00	9·50	12·00	14·00 per doz.

BABBITT METAL.
Excelsior ... cash, dis 10 %

No.	1	2		Extra.
	10c	12c	15c	20c @ 25c

COPPER—DUTY: Pig, Bar and Ingot, 5c.; old copper 4 cents ⅌ ℔; Manufactured (including all articles of which copper is a component of chief value) 45 % ad valorem. All subject to a reduction of 10 per cent.
American Ingot ... ⅌ ℔ 21½c
English ...

SHEATHING, BRAZIERS COPPER, BOLTS, &C.
Braziers Copper, ordinary sizes, over 16 oz., per square foot ... 35c ⅌ ℔
Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., per square foot ... 38c. "
Braziers' Copper, 12 oz. per square foot and lighter ... 41c. "
Circles less than 84 inch in diameter ... 38c ⅌ ℔
Circles, 84 inch diameter and over ... 41c. "
Segment and Pattern Sheets ... 38c. "
Locomotive Fire Box Sheets ... 35c. "
Sheathing Copper, over 12 oz. per sq. ft ... 33c. "
" " 12 oz. ⅌ sq. ft. and lighter ... 41c. "
Bolt Copper ... 35c. "
Copper Bottoms, 32 @ 33c. ⅌ ℔ ... net
No Copper is Sheathing except 14x48 inches, and not to exceed 34 oz. to the square foot.
The above is the present list, but the prices are not being adhered to.

O'NEILL'S PATENT PLANISHED COPPER.
14x48.
14 and 16 oz. and heavier ... 36c. By the case, 35c. ⅌ ℔
12 oz. and lighter ... 39c. " " 38c. "
Boiler Sizes.
7 in., 14x52. 8 in., 14x56. 9 in., 14x60
14 and 16 oz. and heavier ... 38c. By the case, 37c. ⅌ ℔
(And all sizes not over 20 inches wide.)
30x60
14 and 16 oz. and heavier ... 40c. ⅌ ℔
12 oz ... 43c. "

TINNING.
14x48, by the case ... 8c. ⅌ sheet
14x48, less than case ... 10c. "
Boiler Sizes, 7 and 8 inch ... 12c. "
" 9 inch ... 15c. "
Other sizes not larger than 30x60 ... 2½c: ⅌ sq.
Larger than 30x60 ... 5c. "

LEAD—DUTY Pig $2 per 100 lbs.; old Lead, 1½ cent per lb.; Pipe and Sheet, 2½ cents per lb. All subject to a reduction of 10 per cent.
Spanish ... 6½ @ 6¾c gold
German Refined ... 6½ @ 6¾c gold
English ... 6½ @ 7c gold
American ... 6½c gold
Bar ... dis 10 % ... 8¼c.
Pipe ... dis 10 % ... 8½c.
Tin Lined Pipe ... dis 10 % ... 16½c.
Sheet ... dis 10 % ... 8½c.
Shot ... dis 10 % Drop, 8½c.; Buck, 9 c.
Solder ... No. 1, 15c; No. 2, 13½ @ 14c

STEEL—DUTY: Bars, Ingots, Sheets and Coils, valued at 7 cents per lb., or under, 2¼ cents; over 7 cents, and not above 11, 3 cents per lb.; over 11, 3½ cents per lb. and 10 % ad val. Railway Bars 1¼ cents per lb. Railway Bars, in part Steel, 1 cent per lb. All subject to a reduction of 10 per cent. Provided, that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as Steel.

American Cast Steel.
Tool ... 15 @ 16c
Spring ... 10c
Homogeneous ... 12½c
Tire ... 12½ @ 13½c
Machinery (round and square) ... 10 @ 11c
File ... 11c
Sheet ... 14 @ 16c
Saw Plate, mill and mulay ... 14 @ 16½c
Saw Plate, gang and X cut ... 13 @ 14c
" circular as to size ... 18 @ 30c

Chrome Steel.
Tool ... ⅌ ℔ 20 @ 21c
Tool, extra fine ... " 40 @ 75c
Spring ... ⅌ ℔ 12c and upward
Machinery ... ⅌ ℔ 14c.
Hammer ... " 15c.
Gun or Homogeneous ... " 16c

English Steel,—payable in gold, dis 5 % cash.
" Best Cast ... ⅌ ℔ 18c
" Extra Cast ... " 19c
" Round Machinery, Cast ... " 11½c
" Swaged, Cast ... " 18c
" Best Double Shear ... " 18c
" Blister, 1st quality ... " 13½c
" " 2d quality ... " 11½c
" " 3d quality ... " 10½c
German Steel, Best ... " 11½c
do 2d quality ... " 10½c
Sheet Cast Steel, 1st quality ... " 18c
" " 2d quality ... " 16c
" " 3d quality ... " 14c
File Steel, Flat and ½ Round ... " 12½c
" Square and Round ... " 13c
" Mill ... " 13½c
" Taper to 4 inch ... " 17c
" Taper 3 and 3½ inch ... " 18c

SPELTER—DUTY: In Pigs, Bars and Plates, $1 50 per 100 lbs.—less 10 per cent.
Silesian, cash ... 6¾ @ 7c., gold
American " ... 6¾ @ 11c., currency

TIN—DUTY: Plates, Sheets, Tagger and Terne, 15 per cent. ad val.; Electro-galvanized Plates, 2 cents per ℔; Manufactures of, not enumerated, 35 per cent. ad val. —all subject to a reduction of 10 per cent. Bars, Block and Pigs, free. Banca, subject to duty of 10 per cent.
Banca ... ⅌ ℔ 26c., gold
Straits ... ⅌ ℔ 24c., gold
English ... ⅌ ℔ 21½ @ 23c., gold

CHARCOAL TIN PLATE.
I C 10x14, Prime Charcoal ... 11·00 to 11·25
12x12, " ... 11·75
14x20, " ... 12·00
I X 10x14, " ... 13·50
12x12, " ... 14·00
14x20, " ... 14·50
D C 12½x17 " ... 10·75
D X 12½x17 " ... 13·00
For each additional X add ... 2·25

COKE TIN PLATE.

	Best	2d Quality.	Ordinary.
I C 10x14	$10·50 @ 11·00	9·50 @ 10·00	9·00 @ 9·50
I C 12x12	11·00	10·50	
I C 14x20	11·25	10·50	

TERNE PLATE.

	Prime Char.	2d qual.	Coke.
I C 14x20	$10·00 @ 10·50	9·50 @ 10·00	8·00 @ 9·00
I X 14x20	12·75		
I C 20x28	21·00 @ 21·50	20·00 @ 21·00	17·00 @ 19·50
I X 20x28	26 00		
I C 20x100 ft.	25·00		

ZINC.—DUTY: Pig or Block, $1 50 per 100 lbs. Sheet 2½c. ⅌ ℔. All subject to a reduction of 10 per cent.
Sheet ... cask 9½c
" ... open 10c

Paper Stock, Old Metals, &c.

(Dealers' Selling Prices.)

Canvas linen ... 6¼ @
" cotton. No. 1 ... 6¾ @ 7
" " No. 2 ... @ 5
White linen rags, No. 1 ... 6¾ @
" " No. 2 ... 4½ @
Colored ... 2½ @
Mixed woolens ... @ 2½
Soft woolens ... @ 5½
Gunny bagging ... 1¾ @ 2
Jute Butts ... 2¼ @ 2¾
Kentucky bagging ... 5¼ @ 5½
Book stock ... 4 @ 4½
Waste paper and scraps ... 1 @ 1½
Rope cuttings ... 1¾ @ 3
Kentucky Bale rope ... 4 @ 4½
Oakum junk, No. 1 ... 5½ @ 5¾
" No. 2 ... @ 4
Grass rope ... 3¼ @ 3¾
Tarred Shaking ... 1¾ @ [illegible]
White Collar Cuttings, all paper ... 7 @
" " muslin lined ... 5 @
" Envelope " ... 7 @
Hard White Shavings, No. 1 ... 6½ @
Soft " " No. 1 ... 6 @
White Shavings, No. 2 ... 5½ @ 6
Mixed Shavings, part white ... 4 @ 4½
Imperfections, No. 2, best folded sheets ... 5 @
" 1, Heavy Stock ... 4¾ @ 5
Book Stock, Mixed ... 3½ @ 4
" " No. 2, light ... 2 @ 2¼
Prints ... 1¾ @ 2
Pure Manilas ... 2
Bogus Manilas and Hardwares ... 1 @ 1¼
Commons ... 1 @
Binders' Board Cuttings ... 1¾ @ 2
Straw Board Cuttings ... 1¼ @ 1¾

Old Metal.
Copper ... @ 19
Yellow metal ... 14 @ 15
Brass ... 13 @ 14
Heavy Composition ... 17 @ 18
Old lead, solid ... 6 @ 6¼
Tea lead ... 4½
Wrought iron ... 1¼ @ 1¾
Sheet iron ... 0¾ @
Cast iron ... 1 @ 1¼
Machinery iron ... 1¼ @
Zinc ... 5
Pewter, No. 1 ... 17
" No. 2 ... 10 @ 12
Spelter ... 5½ @ 6

Paints, Oils, etc.

Paints.
Black, lamp—Coach Painters ... ⅌ ℔ 20c
" " Ordinary ... 6c
" Ivory Drop, fair ... 15c
" " best ... 26c
Black Paint, in oil ... kegs, 8c.; ass't'd cans, 11 c
Blue, Prussian, fair to best ... 50 @ 75c
" " in oil ... 35 @ 65c
" Chinese, dry ... 83c
" Ultamarine ... 25 @ 30c
Brown, Spanish ... 1¾c
" Van Dyke ... 9c
Carmine, 40 ... $12 00
Green, Chrome ... 15 @ 23c
" in oil ... 18 @ 25c
" Paris ... good, 30c; best, 40c
" in oil ... " 20c " 45c
Mineral Paints ... 1¾ @ 4c
Orange Mineral ... 14½c
Red Lead, American ... 9½c
" English ... 10½c
" Venetian (N. C.) dry ... 2½c
" in oil ... ass't'd cans, 11c; kegs, 8½c
" Indian, dry ... 10c
Rose Pink ... 13c
Sienna, American, Raw ... 4c
" Burnt ... 4½c
" in oil ... 16 @ 26c
" Raw ... 15 @ 25c
Umber, Burnt ... 4 @ 8c
" in oil ... 16 @ 21c
" Raw ... 3½ @ 7½c
" in oil ... 16 @ 22c
Vermillion, Chinese ... $2 10
" English ... 1 98
" Trieste ... 1 65
" American, Common ... 23c
White Lead, American, pure dry ... 10½c
" " in oil ... 11½c
White, Paris, English, prime ... in bbls. 2¼ @ 2½c
Yellow Ochre, French ... 2¼ @ 2½c
" " in oil ... ass't'd cans, 11c; kegs, 8½c
" " Vermont ... in casks 1½c
" Chrome ... 17 @ 27c
" in oil ... 18 @ 22c
Zinc White, American No. 1 dry ... 9c
" " 1, in oil ... 11c
" French (Paris) ... 11 c
" " in oil ... 12 c

Oils.
Linseed Raw ... ⅌ gal. casks, 79c. bbls. 80c
" Boiled ... " 81c. " 85c
Whale, Crude ...
" Bleached Winter ... "
Sperm, Crude ... " 1·65
" Winter unbleached ... " 1·85
" " Bleached ... " 1·90
Seal, Extra Refined ... "
Lard, Pure Winter ... "
" Spring ... " 1·00
Cotton Seed, Crude ... " 60c
" Southern Yellow ... " 65c
" White ... "
Neatsfoot, Winter ... 70c @ $1·10
Natural Lubricating ... 38c @ 40c

Sundries.
Asphaltum ... 9c
Benzine ... ⅌ gal. 16c
Chalk ... 1¼c
" Block ...
Dryer, Patent, Am'n ... ass't cans, 10½c.; kegs 9c
" " English ... " 11c.; " 9c
Flocks ...
Frostings ... 50c
Glue, White ... 33 @ 47c
" Sheet ... 20c
Glaziers' Points, Zinc ... 9c
Gum, Copal ... 35c
" Damar ... 25c
" Shellac, English ... 60c
" " dark ... 56c
Litharge ... 10c
Pumice Stone, selected Lumps ... 4 @ 6c
" powdered ... 4c
Putty in bladders ... 3½c
" in bulk ... 3c
Rotton Stone, soft, English ... 8c
Spirits Turpentine ... 35c
Whiting, Spanish ... 1c

Glass.
French Window—1st, 2d, 3d, and 4th qualities. Per box of 50 feet.

SINGLE.

SIZES.	I.	II.	III.	
6 x 8 to 10 x 15	$10·25	$9·25	$8·75	$8·00
11 x 14 to 16 x 24	12·00	11·00	10·00	9·50
18 x 22 to 20 x 30	15·00	13·50	12·00	10·50
15 x 36 to 24 x 30	17·50	15·25	12·50	
26 x 28 to 24 x 36	18·25	16·00	13·25	
26 x 36 to 26 x 44	20·00	18·00	14·50	
26 x 46 to 30 x 50	21·00	19·00	15·25	
30 x 52 to 30 x 54	22·50	20·25	16·25	
30 x 56 to 34 x 56	24·50	21·75	19·00	
34 x 58 to 34 x 50	26·00	24·50	21·50	
36 x 60 to 40 x 60	30·50	27·00	24·50	

DOUBLE.

SIZES.	I.	II.	III.	IV.
6 x 8 to 10 x 15	$15·50	$15·00	$14·00	$13·00
11 x 14 to 16 x 24	19·25	17·75	16·00	15·25
18 x 22 to 20 x 30	24·00	21·75	19·25	
15 x 36 to 24 x 30	28·00	24·50	20·00	
26 x 28 to 24 x 36	29·25	25·75	21·25	
26 x 36 to 26 x 44	32·00	29·00	23·25	
26 x 46 to 30 x 50	33·75	30·50	24·50	
30 x 52 to 30 x 54	36·00	32·50	26·00	
30 x 56 to 34 x 56	39·25	35·00	30·50	
34 x 58 to 34 x 60	41·75	39·25	34·75	
36 x 60 to 40 x 60	49·00	43·25	30·25	

Sizes above—$12·00 per box extra for every 5 inches.
An additional 10 per cent. will be charged for all Glass more than 40 inches wide. All sizes above 52 inches in length, and not making more than 81 united inches, will be charged in the 84 united inches bracket.
Discounts 60 %.

Grindstones, Emery, &c.

Walter R. Wood,

GRINDSTONES

283 FRONT STREET,

NEW YORK.

EMERY WHEELS AND MACHINERY

Upon which to run the same, of all kinds.

EMERY Emery Cloth, Mill Stone CEMENT. TRADE MARK. DIAMOND Tools, Oil Stones,

Soapstone Register Borders.

For particulars, address,

UNION STONE CO.,

6 Exchange and 26 Devonshire Streets, Boston, Mass.

THE TANITE COMPANY

Emery Wheels Emery Grinders

TRADE TANITE MARK UTILITAS

STROUDSBURG MONROE Co. PA.

THE LEHIGH VALLEY

Emery Wheel Co.,

Weissport, Penn.

Manufacturers of

"LEHIGH" Emery Wheels and Machines.

Send for Circulars.

ROCKY MOUNTAIN VERMILION PAINT CO.

Trade Mark.

THE

Rocky Mountain Vermilion Paint

Is "Nature's Compound" of Copper, Mercury, Lead and Iron. A pure Oxide of Metals, containing no earthy matter, hence we claim and are prepared to *prove* that it is the Best and Cheapest Paint in the market. Properly mixed, we will guarantee it to cover double the surface and wear twice as long as ordinary paints. It will not Peel, Scale, Crack or Blister, though subjected to high degrees of heat. It will effectually Prevent the Corrosion of Metals, even in mid ocean. Warranted superior to red lead or any other lead, for any and all purposes for which paint is required. Please send for circulars.

All orders should be addressed, **Wm. H. Corey,** General Agent, 29 Sabin St., Providence, R. I.

Many & Marshall,

48 Warren St., N. Y.

SASH CHAIN.

Chain and Pulley for Heavy Sash.

THE BEST & CHEAPEST MADE.

Manufacturers of every description of

BUILDERS' HARDWARE,

Pure Bronzed Metal and Hand-Plated Knobs, Hinges, &c.,

Agents for Gaultier's Black Lead Crucibles.

Agency and Depot of the TRENTON LOCK COMPANY.

ROMER & CO.,

Established 1837.

Manufacturers of **Patent Brass Pad Locks for Railroads and Switches. Also, Patent Stationary R. R. Car Door Locks. Patent Plain and Sewing Machine Locks.**

141 to 145 Railroad Avenue, NEWARK, N. J.

Illustrated Catalogues sent on application.

Bemis & Call Hardware & Tool Co.'s

This Wrench can be furnished with Brigg's Pat. Nut or Sleeve.

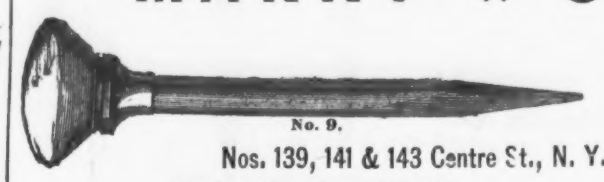
PATENT COMBINATION WRENCH.

These Wrenches are made from the best of Wrought Iron, with Steel Head and Jaw, Case-Hardened throughout. And not only combine all of the superior qualities of our Cylinder or Gas Pipe Wrenches, but also all requisite Combinations of a regular Nut Wrench. Thus making a Combination which has no equal.

For Circulars and Price List, Address,

BEMIS & CALL HARDWARE & TOOL CO. Springfield Mass.

MARKT & CO.,



No. 9.

Nos. 139, 141 & 143 Centre St., N. Y.

MANUFACTURERS AND IMPORTERS OF

Hardware Specialties,

DOOR KNOBS (Lava, Wooden, Porcelain & Mineral), **SHUTTER, PICTURE AND DRAWER KNOBS,**

Plate and Drop Escutcheons, Picture Nails and Curtain Pins,

BRIGHT WIRE GOODS,

Alarm Whistles and Mouthpieces,

FURNITURE NAILS,

Bright Halter & Coil Chains, French Wire Nails,

Wrought Iron and Brass Butts.

Having consignment of one of the largest German manufacturers of **Halter and Coil Chains,** we can offer inducements on these goods.

We shall be pleased to send our new lists and prices to those who will apply.

L. COES & CO.,

Manufacturers of

L. COES' Genuine Improved *PATENT* **SCREW WRENCHES,**

Worcester, Mass.

Our Mr. L. Coes, formerly senior member of the firm of L. & A. G. Coes, established in 1839, is the Original Inventor of the Screw Wrench, and has, by making the bar *wider*, where th strain comes most severe, and screwing a nut up firmly against four *square* shoulders inside the ferrule, thereby *effectually* preventing the ferrule from being thrust back into the handle or getting loose, and making a larger screw than in the old wrench, fully succeeded in making a 12 inch wrench stronger than a 15 inch made in the usual manner. All sizes are made in this way, and are undoubtedly the strongest and best finished Screw Wrenches in the market.

There ar *Imitations* of our goods offered for sale, that, without question, infringe on our Patents.

We hold Patents bearing date Nov. 10th, 1863 (re-issued June 1st, 1869), June 26th 1866, March 23d, 1869 (re-issued April 13th, 1870, and May 14th, 1872), which fully cover all our improvements. One of the above cuts represents a sectional view, showing the nut under the ferrule, and the strengthened bar, that part being covered by the jaw, as seen in the cut of wrench complete. None genuine unless stampe

"L. COES & CO."

Warehouse, 97 Chambers and 81 Reade Streets, New York.

HORACE DURRIE & CO., Agents.

Coal **Hods.**

Stamped Corrugated Sheet Iron Bottom Riveted.

We manufacture six styles having our patent corrugated bottom, and all having the body bottom and hoop **riveted** together. Dealers before buying will find it to their advantage to get our prices, and also to beware of a **seamed** hod that is in the market, somewhat similar in shape to ours. Don't buy any but the **Corrugated Riveted Bottom Hod,** manufactured by

SMITH, BURNS & CO., 46 Cliff St., N. Y.

Also Manufacturers of

Galvanized and Japanned Sheet Iron Goods, and Plain, Stamped and Japanned

TIN WARE.

FRY PANS, FIRE SHOVELS, ASH SIFTERS, &c. Send for Catalogue.

White Lead, &c.

John T. Lewis & Bros.,

No. 231 South Front St.,

PHILADELPHIA.

JOHN T. LEWIS & BROS. WARRANTED PURE WHITE LEAD. PHILADA.

TRADE MARK.

MANUFACTURERS OF

PURE WHITE LEAD, RED LEAD, Litharge, Orange Mineral, Linseed Oil AND PAINTERS' COLORS.

ATLANTIC WHITE LEAD CO. ROBERT COLGATE & WARRANTED PURE

TRADE MARK.

The Atlantic White Lead and Linseed Oil Company,

MANUFACTURERS OF

White Lead (Atlantic), Red Lead Litharge & Linseed Oil.

ROBERT COLGATE & CO.,

287 Pearl Street, New York.

Established 1779.

WETHERILL & BRO.,

Manufacturers of

White Lead, Red Lead, Litharge & Orange Mineral.

Offices, 31st. St. below Chestnut, PHILADELPHIA.

Brooklyn White Lead Co.

TRADE MARK.

White Lead, Red Lead and Litharge.

89 Malden Lane, NEW YORK.

FISHER HOWE, Treas.

JOHN JEWETT & SONS

Manufacturers of the well known Brand of

WHITE LEAD.

JEWETT & SONS' PERFECTLY PURE WHITE LEAD.

TRADE MARK.

Also Manufacturers of

LINSEED OIL AND FLOOR OIL CLOTHS,

182 Front Street NEW YORK

FORTY-SECOND YEAR.

Goods stamped "D. R. Barton & Co." are NOT made by me.

For GENUINE "D. R. Barton" Edge Tools, Planes, Axes, &c., be sure to address D. R. BARTON, and NOT D. R. Barton & Co.

Factory and Office, Mill Street, cor. of Furnace.

D. R. BARTON, Rochester, N. Y.

Iron & Brass Wood Screws.

Full assortment constantly on hand.

ALFRED FIELD & CO.,

Importers,

47 John, and 5 Dutch Streets, N. Y.

This cut shows the Snap pressed partly open.

MIDDLETOWN TOOL CO.,

MIDDLETOWN, CONN.,

MANUFACTURERS OF

The Celebrated "Baldwin" Plane Iron

HENSHAW'S PATENT HARNESS SNAPS

GERMAN HARNESS SNAPS,

PAT. GAFF TOP-SAIL SELF-MOUSING SHIP HOOKS

Plow, Fillet'ster & Dado Stops of all kinds. Set Screws for Plows, Bench Plane Starts, &c. Patent Washer Cutters. Plane Iron Screws to order of any size.

Send for Illustrated Catalogue and Price List.

ESTABLISHED A. D. 1833 and 1855.

JACOBUS & NIMICK MFG. CO.,

PROPRIETORS OF

Pittsburgh Novelty Works & Pittsburgh Variety Works,

Manufacturers of

LOCKS AND LATCHES.

Fairbanks' Standard Platform and Counter Scales, Paint and Coffee Mills Builders' and Domestic Hardware generally.

New York Office, 96 Chambers St., N. Y.

Hardware.

SPEAR & JACKSON,

Sheffield, England,

MANUFACTURERS OF

Saws, Files, Edge Tools and Steel.

JOHN L. FISHER. Agent

116 Duane Street, NEW YORK.

ALFRED FIELD & CO.,

Hardware Commission Merchants,

IMPORTERS AND EXPORTERS.

Principal Offices and Warehouses:

Birmingham, Sheffield & Liverpool, England; New York & New Orleans, U. S.

A large line of Birmingham and Sheffield goods in stock at

47 John & 5 Dutch Sts., N. Y., & 75 Gravier St., New Orleans.

HERMANN BOKER & CO.,

OFFICES AND WAREHOUSES:

NEW YORK, 101 and 103 Duane and 91 and 93 Thomas Streets.
REMSCHEID and SOLINGEN (Prussia.) H. Boker & Co.
SHEFFIELD (England), No. 3 Arundal Lane, Represented by Mr. Arthur Lee.
LIEGE (Belgium), Represented by Mr. Louis Muller.

Manufacturers and Importers of **Cutlery, Guns, Hardware** and **Railroad Material.**
Proprietors of **TRENTON VISE AND TOOL WORKS, Trenton, N. J.**—Vises, Picks, Mattocks, Grub Hoes, Sledges, Hammers, Bridge Work, Turn Tables, etc.
Proprietors of the **MANHATTAN CUTLERY CO.,** "O. K." Razors.
Sole Agents for **LAMSON & GOODNOW MFG. CO., Shelburne Falls, Mass.**—Table Cutlery and Butcher Knives.
W. & S. Butcher's Files, Edge Tools and Razors, the largest stock in the United States.
Geo. Wostenholm & Son's Knives, Scissors and Razors, the largest stock in the U. S.
John Wilson's Butcher and Shoe Knives.
Peter Wright's and Armitage Anvils.

We always have on hand a full assortment of

German and English Hardware, Cutlery, Guns, Gun Material, Chains, Heavy Goods.

ROY & COMPANY,

West Troy, N. Y.,

Manufacturers of

Wrought Iron Butts, Strap and T Hinges,

PLATE AND HOOK HINGES,

Cold Pressed Nuts and Washers, Felloe Clips, &c.

JOHN L. FISHER, Agent, 116 Duane Street, New York.

STANLEY WORKS,

MANUFACTURERS OF

Wrought Butts, Strap and T Hinges.
Bronzed Butts and Bolts.
Wrought Barrel, Square and Shutter Bolts.
Wrought Chest Handles, Washers, Flush Bolts, &c.

79 CHAMBERS ST., NEW YORK.

Factory at New Britain CONNECTICUT.

CROOKE & CO.,

MANUFACTURERS OF

WROUGHT IRON BUTTS,

All our goods are manufactured from patent faced iron plates; they have a smooth face and bright finish.

163 & 165 Mulberry Street. New York.

FERNALD & SISE, Agents, 100 Chambers Street, N. Y.

QUACKENBUSH, TOWNSEND & CO.,

Successors to

SEARS, LEAVITT & CO.,

Importers and Wholesale Dealers in

Hardware, Cutlery, &c.,

59 and 61 Reade Street, New York.

DEPOT FOR

THOMAS JOWITT & SONS, (Sheffield, England,) Celebrated FILES AND HORSE RASPS. Rough and Ready and CLIPPER SCYTHES, Warranted.

THOS JOWITT & SON TESTED CORPORATE MARK

"BEAVER" (American, FILES AND HORSE RASPS. "WIDE AWAKE" AXES.

The Turner & Seymour Mfg. Co.,

MANUFACTURERS, IMPORTERS AND DEALERS IN

Hardware and Upholsterers' Brass Goods.

SOLE AGENTS FOR

STEPHENS' CALIPERS AND DIVIDERS,

Page's Auxiliary Jaws.

Manufacturers of Judds', Prindle's and Combination Patent Curtain Fixtures, Locks and Curtis Patent Raisin Seeder, Patent Twine Boxes, Picture Nails and Hooks, Patent Screw Picture Nail, Escutcheon Pins, Coat and Hat Hooks; also Miscellaneous Iron and Brass Goods.

Small Brass and Iron Castings made to order.

64 Duane Street, NEW YORK.

JOHN WILSON'S CELEBRATED

CORPORATE TRADE MARK FOUR PEPPERCORNS AND A DIAMOND

BUTCHERS' KNIVES,
BUTCHERS' STEELS,
AND
SHOE KNIVES.

THE TRADE MARK, IN ADDITION TO THE NAME, IS STAMPED UPON EVERY ARTICLE MANUFACTURED BY

JOHN WILSON.

Granted A.D. 1766, by the Corporation of Cutlers of Sheffield, and protected by Act of Parliament.

Buyers are specially cautioned against IMITATIONS of the MARK, and the SUBSTITUTION of COUNTERFEITS bearing the NAME, "WILSON," only.

Works:—SYCAMORE STREET, SHEFFIELD. ESTABLISHED in the Year 1750.

BEAM & MURRAY,

IMPORTERS OF

Anvils, Chains, Pocket Cutlery Guns, Files,

BIRMINGHAM, SHEFFIELD & GERMAN HARDWARE,

Wostenholm's IXL Pocket Knives & Razors, Butcher's Files, Tools, &c.

No. 93 Chambers Street, NEW YORK.

THE RIDER AIR ENGINE

Combines in the highest degree,

Economy, Safety & Durability.

USES NO WATER,

Requires no Engineer,

Has no Steam and Water Gauge to look after,

CANNOT EXPLODE UNDER ANY CIRCUMSTANCES,

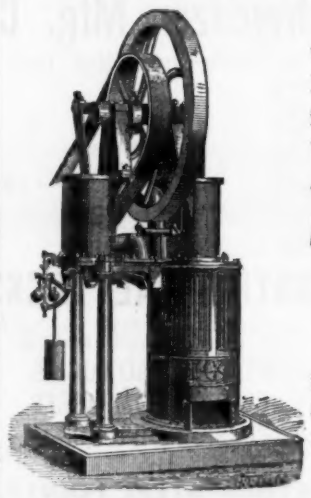
Does not increase the risk of Fire or Insurance, is extremely Simple and not likely to get out of order,

And unlike all "Caloric" Engines is

VERY POWERFUL,

Being 50 per cent. more powerful than

STEAM ENGINES OF EQUAL RATINGS.



Is admirably adapted for all light manufacturing purposes, for Printers, Farmers, Shoe Manufacturers, Machinists, Tea Stores, hoisting, &c. Also for PUMPING at Railroad Water Stations, Residences, Hotels, Breweries, &c., &c. Requires the least possible fuel,

A 2 Horse-Power Engine running all day on 30 pounds of Coal.

PRICE.

2 Horse-Power complete	.....	$500 00
3 " "	.....	700 00
5 " "	.....	950 00

Send for Catalogue.

RIDER, WOOSTER & CO.,

Walden, Orange Co., N. Y.

GREENFIELD TOOL CO.,

Sole Manufacturers of the Celebrated

"Diamond" PLANE IRONS,

Of **Uniform** temper and finish. Solid **Steel Caps** and **Warranted. PATENT FORGED OX SHOES.** The **only** Shoe made with **concavity** to fit hoof, and the best and **cheapest. BENCH AND MOULDING PLANES** of every description. Also, Plow and Match Bits, Moulding and Rabbet Irons, Plane Stops, Cuts, Starts, Plates, &c., &c. Drop Forgings to order. Address for Catalogue and Prices

GREENFIELD TOOL CO., Greenfield, Mass.

Warehouses **New York, 37 Chambers St.; Boston, 22 Oliver St.** Reduced Prices for 1874.

BUSH HILL IRON WORKS,

Corner 16th & Buttonwood Streets,

PHILADELPHIA.

JAMES MOORE,

(Successor to MATTHEWS & MOORE,)

Engineer, Machinist, Founder and Boilermaker,

CASTINGS of every description.

ROLLING MILL AND FURNACE EQUIPMENTS COMPLETE.

Rolls Turned for Rails, Beams, Angles, and all shapes for Iron, Steel, or Composition Metals.

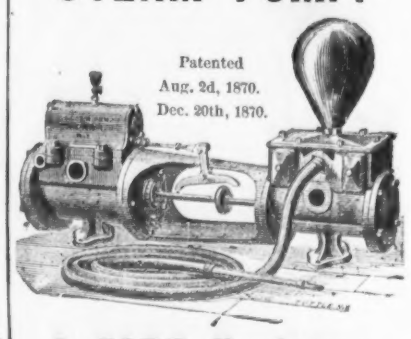
Sugar Mill, Saw Mill and Grist Mill Machinery,

AND MILLWRIGHTING IN GENERAL.

BOILERS—FLUE, TUBULAR AND CYLINDER, and all kinds of TANK AND PLATE IRON WORK.

The Selden Direct-Acting

STEAM PUMP.



A. CARR, Manufacturer.

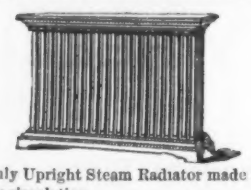
Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to ALL PURPOSES for which Steam Pumps are used.

It is Unsurpassed as a Mining Pump

CARR'S POSITIVE

CIRCULATING

Steam Radiator.



The only Upright Steam Radiator made which has a *positive* circulation,

Selden Steam Pump, Wrought & Cas Iron Pipe, Brass Work, &c.,

for Plumbers, Steam and Gas Fitters.

For descriptive circular and price lists, address

A. CARR 43 Cortlandt St. N. Y.

DIRECT - ACTING

Steam Pumps,

Manufactured and for sale solely by

STEELE & CONDICT,

TITAN IRON WORKS, Jersey City, N. J.

Office and Salesroom

88 Liberty Street, New York.

No auxiliary valves used. Direct connection betwee piston rod and valve movement. No knocking or jarring. Circulars and price lists sent upon application.

WILSON BOHANNAN,

Manufacturer of Patent

Brass Spring

PAD LOCKS

FOR RAILROAD SWITCHES,

Freight Cars, &c.

Cor. Broadway and Kossuth Street, BROOKLYN, E. D., N. Y.

The Best Paper! Try It!!

The **Scientific American** is the cheapest and best illustrated weekly paper published. Every number contains from 10 to 15 original engravings of new machinery, novel inventions, Bridges, Engineering works, Architecture, improved Farm Implements, and every new discovery in Chemistry. The Scientific American has been published weekly for 30 years, and stands foremost of all industrial papers. A year's numbers contain 832 pages and several hundred engravings. Thousands of volumes are preserved for binding and reference. The practical receipts are well worth ten times the subscription price. Terms, $3·20 a year by mail, including postage. Specimens sent free. May be had of all News Dealers.

PATENTS obtained on the best terms. Models of new inventions and sketches examined, and advice free. All patents are published in the Scientific American the week they issue. Send for Pamphlet, 110 pages, containing laws and full directions for obtaining Patents.

Address for the Paper or concerning Patents,

Munn & Co., 37 Park Row, New York.

Branch Office, cor. F and 7th Sts., Washington, D. C.

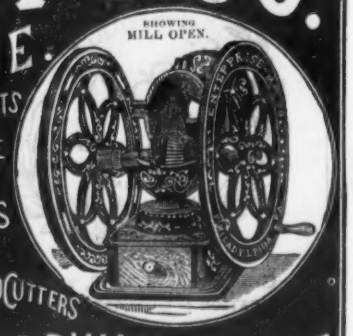
SEND TO THE

ENTERPRISE MFG. CO.

FOR ILLUS. CATALOGUE.

AMERICAN COFFEE DRUG AND SPICE MILLS

20 SIZES



MEASURING FAUCETS

BUNG HOLE BORERS

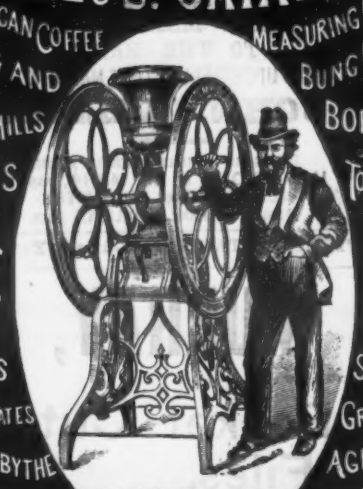
TOBACCO CUTTERS

FOR SALE BY THE HARDWARE TRADE

CHEESE KNIVES

MOLASES GATES

MADE BY THE ENTERPRISE MFG CO



20 DIFFERENT SIZES OF MILLS.

SAW SETS &c&c.

GRAHAM & HAINES AGENTS 88 CHAMBERS ST N.Y.

PHILADELPHIA.

WHEELING HINGE CO.,

Wheeling, West Va.,

Manufacturers of

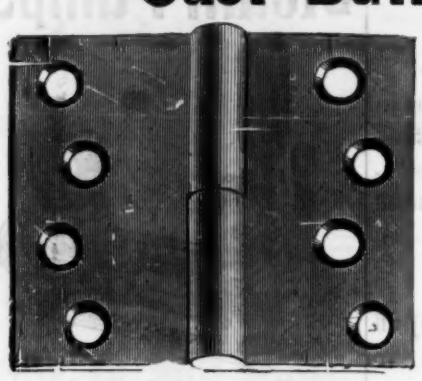
Wrought Butts, Strap & T Hinges, Wrought Hooks, Hasps & Staples, Wrought Repair Sinks & Washers,

GRAHAM & HAINES, Sole Agents, 88 Chambers Street, N. Y.

AMERICAN BUTT CO.,

PROVIDENCE, R. I., Manufacturers of

Cast Butt Hinges,



AND

BUILDERS'

HARDWARE.

New York Warehouse with

Messrs. GRAHAM & HAINES,

No. 88 Chambers Street.

Send for Price List.

Headquarters for

Henry Disston & Sons' Saws,

Hand, Mill, Circular and Cross Cut.

ALSO,

Plumbs and Levels, Try Squares, Gauges, Trowels and Barker's Reversible Butt.

A full assortment constantly on hand. Address orders to

GRAHAM & HAINES, 88 Chambers Street, N. Y.

CENTENNIAL

SELF-LUBRICATIVE

Hemp Piston Packing

FOR

Locomotives, Steamships, Stationary Engines, Hot or Cold Water Pumps.

Recommended by Master Mechanics and Engineers, as the cheapest and best in market. **No more Extortionate Prices. No more Fluted Rods**—but a good article at fair price.

JOHN CANFIELD & CO.,

SOLE MANUFACTURERS,

Office, 1321 Fairmount Ave., Phila.

PATENT APPLIED FOR. Send for Circular.

BAEDER, ADAMSON & CO.,

Manufacturers of

Sand and Emery Paper and Emery Cloth

(Also, in Rolls for machine work.)

GROUND EMERY, CORUNDUM AND FLINT,

Glue & Curled Hair, Cow Hide Whips.

STORES:

PHILADELPHIA, 730 Market St., | BOSTON, 143 Milk St.,

NEW YORK 61 Beekman St., | CINCINNATI, 92 Main St.,

CHICAGO, 182 Lake St.

COBB & DREW,

Plymouth, Mass.

Manufacturers of Copper, Brass, and Iron Rivets: Common and Swedes Iron, Leathered, Carpet, Lace and Glimp Tacks; Finishing, Hungarian, Trunk Clout and Cigar Box Nails, &c. Rivets made to Order.

NEW YORK AGENCY

Grundy & Kenworthy

HARDWARE.

165 Greenwich Street.

Agent for the Philadelphia Star Carriage and Tire Bolts

SAMUEL LORING'S

PLYMOUTH TACK AND RIVET WORKS

PLYMOUTH, MASS., manufacturer of

TACKS, BRADS, NAILS AND RIVETS.

Swedes and Common Iron Tacks; Leathered, Carpet Brush, Lace and Gimp Tacks; Finishing, Hungarian, 3d 2d and 3d Fine, Trunk, Clout, and Cigar Box Nails; Bright and Tinned Trunk Nails; Zinc, Iron, Copper and Steel Shoe Nails; Brads and Patent Brads; Glaziers' Points &c., &c., &c., **COPPER, BRASS AND IRON RIVETS,** of all kinds. Coopers' Rivets, from 1d to 6d, in casks of 100 lbs. each. Hose, Belt and Shoe Rivets and Burs. Oval and Countersunk Heads of extra lengths, made to order. SHIP AND BOILER RIVETS OF ALL SIZES AND LENGTHS

Schweitzer Mfg. Co.,

57 Reade Street New York.

CONTINENTAL LOCKS,

Made of Wrought Iron or Brass, very superior quality, and only an auger used in mortising.

SCHWEITZER PAD LOCKS,
EXCELSIOR COMPASSES.
EXCELSIOR DIVIDERS,

WITH

STUBS' STEEL POINTS,

Best and Cheapest Goods in the market. Sole Agents for the United States for

NEWBOULD'S FILES AND TOOLS

French Coffee Mills.

NOBLE MFG. CO., Tools, Ship Augers, &c.

Emery, Waterhouse & Co., Shovels & Spades

We also make a superior

AXE. { *"Queen of the Forest,"* *"Wood Chopper's Pride,"* &c

Disston's Saws. (Largest stock in the City).

General dealers in

FOREIGN & DOMESTIC HARDWARE.

SOLE AGENTS IN NEW YORK.

MOWRY, MASTERS & ANDREWS,

AM. TEA TRAY WORKS,

GREENWICH, N. Y.

TIFFT & HOWARD, 12 MURRAY ST.

SOLE AGENTS IN NEW YORK.

J. F. GREEN & BRO.

Manufacturers of Family Grindstones,

HAVERSTRAW, N. Y.

TIFFT & HOWARD, 12 MURRAY ST.

TIFFT & HOWARD,

MANUFACTURERS OF

GAS AND KEROSENE STOVES,

AND PATENTED SPECIALTIES IN

HOUSEKEEPING GOODS,

12 Murray Street.

THE CELEBRATED

YALE LOCKS

FOR ALL USES.

ORNAMENTAL REAL BRONZE HARDWARE.

Yale Lock Manufacturing Co., Stamford, Conn.

Salesroom, No. 298 Broadway, NEW YORK.

The Hart, Bliven & Mead Mfg. Co.,

18 & 20 Cliff Street, and 243 & 245 Pearl Street, New York.

Factories at KENSINGTON, CONN.

MANUFACTURERS OF

CARRIAGE HARDWARE,

Japanned, Silver Capped and Plated Carriage Knobs.

EVERY STYLE OF

BANDS AND SOCKETS IN SILVER, NICKEL, OROIDE AND GOLD PLATED.

Send for our Catalogue and Appendix. Price $4·50, and charge remitted on receipt of subsequent orders.

Improved Door Knobs.

PAT'D, JAN. 10TH 1865.

On the 10th January, 1865, we obtained Letters Patent for improved method of securing necks to Mineral and Porcelain Door Knobs, which improvement was used by us long enough to prove its utility, but on account of unsettled claim of joint ownership by former partner, its use was discontinued. Having now made a further improvement, for which we have made application for a Patent, we are now making the **BEST SECURED** and **MOST DURABLE** Mineral and Porcelain Door Knobs ever offered in this or other markets.

We solicit orders for these Knobs at our regular prices for old styles, with the understanding that if any can be loosened from or gotten off the necks without breaking the tops, they may be held by the purchaser subject to our order, with expenses added.

See *The Iron Age*, of August 21st., page 11, for illustrated description of our patent **Telescope Locks and Latches,** with patent Flat **Steel Perforated Keys,**

Address

BRANFORD LOCK WORKS,

Branford, Conn.

Or, THE HART, BLIVEN & MEAD MANUFACTURING CO., Agents,

18 & 20 Cliff and 243 & 245 Pearl Streets, New York

Easily Applied and not Liable to get out of Order."—From Report of Judges at American Institute Fair, 1872.

The Challenge Door Spring Co.,

Patented. **Exclusive Manufacturers of the** [March, 1873

In Appearance the Most Beautiful. In Action the Most Graceful. In Use the Most Reliable.

The Challenge Springs are manufactured from **Steel Wire, tempered by an Improved Process,** the result of repeated experiments, and must not be classed by dealers with the numerous worthless "Coil Springs" made from common Bed Spring Wire.

No. 49 Ann Street, NEW YORK.

Acknowledged the Best.

The best machine by far, for the trade and the public.

"Champion."

Gives universal satisfaction.

Is highly recommended by all dealers that keep it.

"Champion."

Everybody that has tried the

"CHAMPION"

prefers it to any other machine made.

CHAS. FELDER, 105 Reade St., N. Y.

Send for Price List.

PHILADELPHIA.

(Corrected weekly by Lloyd, Supplee & Walton).

Terms, 30 days. For 60 or 90 days, interest added at 10 per cent. per annum.

Anvils.—Solid Cast Steel.....₱ ℔ 14c
Peter Wright's.....₱ ℔, gold, 12½c
Wilkinson's.....11½c
Eagle.....11 cents currency—dis 15 @ 53 %
Apple Parers.—Union.....per doz $6 50 net
Skeleton..... " 6 50 net
Victor..... " 6 75 net
Domestic..... " 7 00 net
Reading..... " 12 00 net
Bay State Paring, Coring and Slicing.. " 10 50 net
" " Peach Parers..... "
Axes.—Mann's Light.....Per doz. $13 00 @ 12 50
Hunt's Light..... " 13 00 @ 12 50
Red Indian, all sizes..... " 12 50 @ 12 00
Red Chiertain, all sizes..... " 13 00 @ 12 50
Crown Prince..... " 13 50 @ 13 00
Augers and Auger Bits.—Pierce's Pat.
Twist Bits.....dis 25 @ 30 %
Douglass' & Ives' Bits.....dis 30&10 %
Connecticut Valley Auger Bits.....dis 35&10 %
Cook's Bits.....dis 40&10 %
Jennings' Bits.....dis 10 %
Bates' Nut Augers.....dis 30&5 %
Douglass' & Ives' Augers.....dis 30&10 %
Watrous' Ship Augers.....dis 10 %
Bonney's Pat. Hollow Augers.....dis 25 %
Stearns' Patent Hollow Augers.....dis 25 %
Balances.—Landers Frary & Clark's.....dis 15 %
Chattillon's.....dis 15 %
Morton's.....dis 15 %
Common Spring with Hook..... ₱ doz $1 38 @ 3 00
Bells.—Bevin Bros. Mfg Co. Light Hand Bells.....dis 60&10 %
Other makers light.....dis 65&10 %
Swiss Pattern Hand Bells.....dis 50 %
Connell's Door Bells.....dis 50 %
Great Western and Kentucky Cow.....dis 30&10 %
Boring Machines.—Bates' Mfg. Co., complete with augers.....dis 15 @ 20 %
Douglas Mfg. Co., complete with augers..dis 15 @ 20 %
Common Boring Machines, no Augers.....$4 25 @ 4 00
Angular " " ..... 5 25 @ 5 00
Bolts.—Eastern Carriage Bolts .....special prices
Western " " .....
Philadelphia " " .....dis 50&5 %
Wrought Snutter Bolts.....dis 50 %
Cast " " .....dis 50 %
Skelly's Phila. Norway iron, finish, points.....dis 50 %
Braces.—Barber's.....dis 40&5 %
Packus.....dis 45 @ 50 %
Bartholomew's American Ball.....dis 10&10 %
Spofford.....dis 40 @ 40&5 %
Butts.—Cast Fast Joint, Narrow.....dis 40 @ 40&5 %
" " Broad.....dis 50 @ 50&5 %
Cast Fast Loose Joint.....dis 50 @ 50&5 %
" " Acorn, Loose Pin.....dis 40&10 %
Wrought Loose Pin.....dis 35 %
" Table Hinges and Back Flaps.....dis 30 %
" Narrow.....dis 30 %
" Loose Joint.....dis 35 %
" Reversible.....dis 35 %
Parker's Blind Butts. } dis 50 %—dis by the case 50&5 %
Shepard's " " " }
Clark's " " " }
Cherrytree " " for wood. }
Lull & Porter's Blind.....dis 40 %
Clark's Mortise Butts.....dis 40 %
Chains.—German Halter.....dis 15 @ 20 %
" Coil.....dis 15 @ 20 %
Galvanized Pump.....₱ ℔ 15c
Best Proof Coil Chain—

₱ ℔...	13½	10½	9½	9	8½	8½	8c gold
	3-16	¼	5-16	⅜	7-16	½	⅝ in.

By the cask, 500 lbs., discount ½c per lb. Common Chain, ½c per lb. less than proof.
Chisels.—Socket Framing.....dis 60 @ 60&10 %
Socket Firmer.....dis 60 @ 60&10 %
Tang " .....dis 40 @ 40&10 %
Beaty's Framing and Firmer.....dis 10 @ 15 %
Casters.—Porcelain Wheel.....dis 40&10 %
Iron and Brass Wheels.....dis 40 %
Iron Bed.....dis 40 %
Clothes Wringers.—Universal.....per doz $60 00
Novelty..... " 60 00
Providence..... " 60 00
Monitor..... " 60 00
Orders for 5 dozen lots, discount $2 per dozen.
Coffee Mills.—Common Box and Side.....dis 10 @ 15 %
Patent Box and Side.....dis 10 @ 15 %
Cutlery.—American Pocket (best).....dis 25 %
Landers, Frary & Clark, J. Russell & Co. and Lamson & Goodnow Mfg. Co. Manufacturers' net prices.
Drawing Knives.—Hart Mfg. Co.'s.....dis 60 @ 60&10 %
Concave Adjustable Handle.....dis 10 %
Beatty.....dis 10 @ 15 %
Fry Pans.
Tinned.....dis 20 %

₱ doz..	$3 00	3 25	3 62	4 00	4 50	5 00	5 50	6 00	7 50
No....	0	1	2	3	4	5	6	7	8

Burnished.....

₱ doz..	$2 80	3 00	3 38	3 75	4 12	4 50	5 00	5 62	6 75
No....	0	1	2	3	4	5	6	7	8

Files.
Nicholson Mill Files...new list, $5 00 to £ cur dis 12½ %
" Bastard..... " 5 00 to £ cur dis 12½ %
" Taper..... " 5 00 to £ cur dis 12½ %
Butcher's Mill.....$5 50 to £ gold
" Bastard..... 5 50 to £ gold
" Taper..... 5 50 to £ gold
Fluting Machines.
K. F. M.—4½ in. rolls, $5 50.....dis 10 %
" —6 in. rolls, $6 65.....dis 10 %
Mrs Knox—4 in. rolls, $5 50.....dis 10 %
" —6 in. rolls, 6 65.....dis 10 %
Hammers.
Yerkes & Plumb's.....dis 12½ %
Hammond & Son's.....dis 12½ %
Verce.....dis 12½ %
Hatchets.
Beatty's.....dis 10 @ 15 %
Shingling and Half. { ₱ doz...$7 00 7 50 7 75 8 00
No..... 1 2 3
Yerkes & Plumb.....dis 15 %
Shingling and Half. { ₱ doz...$7 00 7 50 8 00 8 50
No..... 1 2 3 4
Claw.... { ₱ doz.....$7 50 8 00
No..... 1 2 3
Hinges.—Strap and T.....dis 30&10 %
Parker's Blind..... } Discount 50 %. By the case 50&10 %.
Shepard's " " ..... }
Clark's " for wood..... }
Cherrytree Blind for wood. }
Lull & Porter's Blind.....dis 40&10 %
" " .....by the case dis 50 %
Clark's Mortise Blind.....dis 40 %
Horse Nails.

	Nos.	6	7	8	9	10
Ausable		27	25	24	23	22
Globe		28	26	25	24	23
		26	24	23	22	21
Brundage	Nos.	5	6	7	8	9	10
Putnam		32	28	26	25	24	23

On Ausable, Globe and Brundage 1000 ℔ lots.....dis 5 %
Knobs.—Door, Mortise and Rim.
Makes in Combination.....new list dis 45 %
Mineral and Rim.....dis 5 %
Locks and Latches.—Rim and Mortise.....dis 45 %
Extra discount for cash 2 %
Till and Cupboard.....dis 25 %
American Padlocks.....dis 50 %
Scandinavian Pad Locks.

₱ doz.....	$10 50	10 50	12 00	12 00	15 00	15 00	} dis 15 %
No.....	9	9½	10	10½	11	11½	
₱ doz.....	$18 00		18 00		22 00	22 00	} dis 15 %
No.....	12		12½	13		13½	

Trunk Locks.....dis 5 @ 10 %
Thumb and Boggens Latches.....dis 25 %
Lanterns.—Square Candle and Oil.....dis 10 %
Globe for Oil.....dis 10 %
" " Kerosene.....dis 10 %
Tubular Lanterns.....dis 10 %
Mattocks.—Long and Short Cutter.....dis 25 %
Western Pattern.....dis 25 %
Pennsylvania Pattern.....dis 15 %
Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets.....dis 20 %
Stebbins' Gates.....dis 60 @ 60&10 %
Lincoln's " .....dis 40 @ 40&10 %
Landers, Frary & Clark's Petroleum...dis 10 @ 10&10 %
Taylor's Petroleum Faucets.....dis 20 @ 20&10 %
Brass Liquor Cocks.....dis 20&10 %
Meat Cutters.—Dixon's.....dis 10 %
Woodruff.....dis 10 %
Stowe.....dis 10 %
Hale's.....dis 10 %
Stuffers.....dis 10 %
Planes.—Auburn Tool Co., "Bench".....dis 35 @ 35&5 %
Second Quality.....dis 50 %
Metallic Plane Co.....dis 25&5 %
Evans Pat. Circular.....net
Plane Irons.—American.....list net
Butcher's.....gold £, $5 50
Picks.—Philadelphia.....net
Pittsburgh.....net
Plumb and Levels.
Stanley Rule and Level Co.....dis 60&10 %
Wm. Johnson. (Stanley List).....dis 60&10 %
Rakes.—Cast Steel Garden.....dis 33½ %
Malleable Garden.....dis 33½ %
Wood Head Iron Teeth.....dis 30 @ 40 %
Rules.—All Maker's Boxwood...dis 60&10 @ 60, 10&10 %
All Makers Ivory.....dis 50 %
Steelyards.—American Pattern.....dis 15 %

₱ doz.....	$5 50	7 00	9 00	11 00	11 00	12 00
No.....	50	100	150	200	250	300

English Pattern.....dis 15 %

₱ doz.....	$7 00	8 67	10 67	12 67	14 67	16 67
No.....	50	100	150	200	250	300

L. F. & C. Excelsior.....dis 10 %

₱ doz.....	$9 00	10 00	12 00	15 00	18 00	21 00
No.....	50	100	150	200	250	300

Scythes.—Golden Clipper, Damascus Blade, Boxed and Sharpened.....₱ doz. $11 00 net
Clipper No. 10, Boxed and Sharpened.....₱ doz $10 50
" " 8, " " " 10 00
Common Scythes.....₱ doz $7 00 @ 10 00
Squares.—Steel and Iron, new list.....dis 50 %
Saws.—Disston's Cross Cut.....dis 12½ %
Disston's Hand.....dis 12½ %
W. McNiece's H'd, Cross-Cut & Circ'r, new list..dis 15 %
Boynton's Lightning, new list.....dis 30 %
Shovels and Spades.
Rowland's Plain Back, list Sept. 1st.....dis 30 %
" Back Strap " .....dis 20 %
Oliver Ames & Sons.....new list dis 12½ %
Brady Shovel Co.....dis 12½&5 %
Sad Irons.—Richmond (polished face) per lb. 4 c. net
Richmond (polished face)... by the cask " 3½c. net
Stone.—Arkansas Oil, No. 1.....₱ ℔ $1 75
Turkey Oil, No. 1..... " 1 00
Washita Extra..... " 30c
" No. 1..... " 22c
" " 2..... " 15c
" " 3..... " 5½c
Screws.—Iron.....new list, Jan. 1st, 1874, dis 5½ %
Brass.....dis 5½ %
Spoons.—
Plated.....dis 40&5 %
Britannia.....dis 40&10 %
German Silver.....dis 20 %
" Light.....new list dis 15&5 %
Lalance & Grosjean Iron.....dis 10 %
Springs.—Gray's Door.....dis 40 %
Torry's Door.....dis 40 %
Stocks and Dies......dis 15 %
Stove Polish.—Gem.....₱ gross, $5 00
Onyx..... " $5 00
Try Squares.—Winterbottom.....dis 10 @ 15 %
Stanley Rule and Level Co.....dis 45&10 %
Willis Thrall, No. 2.....dis 30&10 %
Disston's No. 2.....dis 40 %
Tacks, &c.—Half Weight Tacks.....dis 72½ %
" " " by the case...dis 72½&7½ %
Clout and Finishing Nails.....7½ %
" " " by the case.....dis 7½ %
Traps.—Genuine Oneida—Newhouse list.....dis 20 %
Imitation " " " .....dis 30 %
Vises.—Solid Box.....₱ ℔ net 15c
Wrenches.—Coes Genuine.....dis 40 %
Coes Imitation Wrought Bar.....dis 50 %
" " Malleable Bar.....dis 60 %
" " (Kellogg) Malleable Bar...dis 50 @ 10 %
Tafts Pattern (Wrought Bar).....65 %
" " Kellogg's (Nail Bar).....dis 65&10 %
Philadelphia Tool Co.'s Pat. Duplex.....dis 25 %
" " " Improved Baxter.....dis 25 %
" " " Adjustable Fork.....dis 25 %
Wire.—No. 0 to 18.....dis 40 %
No. 19 to 26.....dis 40 %
No. 27 to 36.....dis 45 %
Coppered 0 to 12.....dis 45 @ 47½ %
Tinned Broom Wire.....dis 15 @ 20 %
Galvanized Wire No. 0 to 18.....dis 20 %
Galvanized Wire No. 0 to 18.....dis 40 %

BUFFALO.

Reported by Messrs. Sidney Shepard & Co.

Sept. 12, 1874.

Augers—Snell Mfg. Co.....dis 20 %
Bits, Auger—Snell Mfg. Co.....dis 30 %
Bells, Cow—Yaw's Genuine.....dis 30 %
Bolts—Carriage and Tire.....dis 75&10 %
Braces—Bit, Spofford's Patent.....dis 40&5 %
Brads, Cut.....dis 50&7½ %
Boards—Stove, Brooks' Patent.....dis 30 %
Butts—Brass.....dis 35 %
" Wrought Narrow.....dis 30 %
" Broad, Loose Joint.....dis 35 %
" Table and Back Flaps.....dis 35 %
Wrought Butts, Loose Pin.....dis 35 %
Belting—Rubber.....dis 30 @ 35 %
Leather, new list, oak tanned.....dis 20 %
Brick—Bath (box of 2 doz) Best English.....$1 50
" Rutherford".....$1 00
Chalk—White, Carpenter's.....₱ gross, 50c
Red, Carpenter's..... " 75c
Blue, " ..... " 90c
Chisels—Firmer Socket.....dis 60&10 %
Framing Socket.....dis 60&10 %
Corner Socket Chisels.....dis 60&10 %
Slick's Carpenters'.....dis 60&10 %
Castings—Malleable.....₱ ℔ 10c
Clothes Wringers, "Novelty" No. 2.....₱ doz $58 00
Elbows—Corrugated..... 5 5½ 6 7 } dis 10 %
Charcoal.....$3 50 4 50 5 25 6 50 }
Russia..... 7 00 9 50 12 00 14 00 }
Files—Maischoss Bros.....dis 50 %
Freezers Ice Cream—"Champion".....dis 33½ %
Hammers—Henry W. Kip's.....dis 7½ %
Hinges—Window Blind—
Clark's.....dis 50&10 %
Shepard's and Standard.....dis 55&10 %
Wrought Strap and T.....dis 50&10 %
Hods, Coal—Plain, Black and Galvanized.....dis 10 %
Funnel, Black and Galvanized.....dis 10 %
Fancy and Helmet.....dis 10 %
Palace Coal Vases.....dis 10 %
Hooks and Staples—Wrought.....dis 10 %
Hooks—Belt.....dis 60&10 %
Haspe and Staples—Wrought.....dis 50&10 %
Sad Irons.....dis 60&10 %
Kettles—Brass.....4c
Enameled.....₱ ℔, 50c
Knives, Drawing—Oval No. 1.....dis 50&5 %
Razor Blade.....dis 60&10 %
Lanterns "Peerless,".....dis 50&10 %

No.	1	3	10
	₱ doz $36 00	$10 50	$13 75 dis 10 %

Tubular.....
" with Guards.....
Machines—Apple Paring, "Turn Table".....$ 00 ₱ doz
Mills, Coffee—Box and Slide, common.....dis 15 %
Box Union and Eagle.....dis 15 %
" American.....dis 20 %
Nails—Clout and Finishing.....dis 7½ %
Shoe.....dis 7½ %
Horse, Ausable.....No. 5 6 7 8 9 10

	30	27	25	24	23	22c

" " Finished & Pointed.....add 1c ₱ ℔
" " 1000 lbs.....
" Clinton.....dis 5 %

No.	6	7	8	9	10
	22	20	19	18	17c

Packing—Rubber.....dis 30 @ 35 %
Pencils, Slate—Soapstone.....4 5 6in.
30 40 50c. ₱ 100
Case lots.....dis 20 %
Paint—White Lead, U. S. Gov't.....₱ ℔ 9 c
Rivets—Iron, Black and Tinned.....dis 25&7½ %
Rope—Manila, ¼ inch and larger.....₱ ℔ 15½c
Screws—"American Screw Co"—
Flat Head, Iron.....dis 52½ %
Flat Head, Brass.....dis 52½ %
Staples—Blind, Boardman's Pat., ½ & ¾.....₱ ℔ 37c
Spoons, Iron Tinned.....dis 10 %
" by the case.....dis 20 %
Plated Rogers' A No. 1.....dis 40&10 %
Britannia.....dis 45&10 %
Squares—Steel and Iron.....new list 50 %
Shoes, Horse—H. Burden & Sons.....₱ keg $6 00
Saws—Henry Disston & Sons.....dis 10 %
Scales—Buffalo Scale Works.....dis 25 %
Fairbanks.....dis 15 %
Traps, Steel—Newhouse.....dis 20 %
Tacks—Half Weight Am. Iron.....dis 72½&7½ %
Vises—Parallel, Buffalo.....dis 25 %
Ware—French, Tinned and Iron.....dis 25 %
Stamped and Japanned.....dis 10 %
Cast Iron Hollow.....dis 33½ %
Tin Plates.—Add for each X.....2·50
10x14, IC. Charcoal...$11·25 | 14x20 C. terne...$10·25
12x12, " ... 11·75 | 20x28 C. " ... 21·20
12½x17, " ... 10·75 | 20x28 X. " ... 26·00
14x20, " ... 12·25
Pig Tin—Straits.....38c @ 29c
Bar Tin.....30c
Solder.....No. 1, 15c; No. 2, 14c
Sheet Zinc—
"Lasalle".....$10·50 | 100 ℔ casks
$10·00 | 10·50 ₱ 100 ℔s
Sheets.....$10·00
Iron Wire—Bright and Annealed.....dis 40 %
Coppered.....dis 35 %
Tinned.....dis 15 %
Tinned Broom, { Nos. 20 | 21 | 22 } dis 20 %
20c | 21c | 21c
Copper—Sheathing 14 @ 16 oz.....₱ ℔ 33c
Planished.....₱ ℔
Bottoms.....₱ ℔ 33c
Bolts.....₱ ℔ 35c
Braziers' Sheets.....₱ ℔ 32c
Sheet Iron.—
18 Common.....$4 95
24 Common.....5 25
24 W. D. Wood & Co., Smooth Finish.....5 90
Am. Russia.....A. B.
15c 13c
Gen. Russia, No. 1 stained.....15c
" " clean.....19c
Galvanized.....dis 15 %

CINCINNATI.

Reported by Sellew & Co., Importers and Jobbers Metals, No. 214, 216 and 218 Main street.

Tin Plate.—I. C. 10x14 Charcoal.....$ @ 13·00
I. X. 10x14 Charcoal..... @ 17·00
I. C. Terne 14x20..... 11·00 @ 12·00
I. C. Terne 20x28..... 24·00 @ 25·00
I. C. Continuous..... 26·00
Block Tin.....₱ ℔ 30c @ 31c
Solder.— | A. L.....₱ ℔ 20c
S. & Co.....₱ ℔ 26c | Roofing..... " 17c
Lead.—Pig.....₱ ℔ 7c. | Bar.....₱ ℔ 8c
Copper.—
Ingot.....₱ ℔ @ 46c | Sheets, 6 to 9 lb...₱ ℔ 41c
Planished..... " @ 44c | " 10 to 12 lb... " 38c
Sheathing..... " @ 35c | Braziers 13 lb..... " 35c
Copper Drops @ 38c | Copper Bottoms.....
Zinc. Cask, 500 to 1000 lbs.....₱ ℔ 10 c
Case, 100 lbs..... " 11 c
Slab..... " 7½c
Brass.— | Roll, No. 28 to 40...₱ ℔ 30c
Roll, No. 6 to 30..₱ ℔ 38c | Wire, No. 0 to 20... " 40c
" 30 to 38.. " 42c | " 20 to 25... " 45c
Babbit Metal.— | Allens'.....₱ ℔ 25c
Sellew & Co.....₱ ℔ 35c | Market..... 12c
Antimony.....₱ ℔ 17c
Bismuth.....₱ ℔ $4 00
Nickel.....₱ ℔ $4 50
Sheet Iron.—
Gem Russia.....₱ ℔ 22c | Am Russia A.....₱ ℔ 15c
" B..... " 12½c

	Com. B.	Smooth Fin. S. L. U.	Smooth D Re'fd.
15 to 20	4·4c	5·9c	7·9c
22 to 24	4·6c	5·1c	8·1c
26	4·8c	6·3c	8·3c
27	5·0c	6·5c	8·5c

Galvanized Iron.—Full bundles.....dis 20 %
Nos. 18 to 20.....12c | No. 26.....14c
22 to 24.....13c | 27.....15c
Bar Steel.—Silver, ₱ ℔ 16c; Crescent, 21c.
Iron Wire.....dis 35 %
Knameled Ware.....dis 45 %
One Piece Corrugated Elbows.....dis 10 %

Charcoal Iron.	₱ doz.	Russia Iron.	₱ doz
4½ inch	$2·50	4½ inch	$5·00
5 "	3 50	5 "	7·00
5½ "	4·50	5½ "	9·50
6 "	5·25	6 "	12·00
7 "	6·50	7 "	14·00

Leader Elbows, Flat Crimp Retinned or Galvanized.—Dis. 10 %

	₱ doz.		₱ doz
2-inch	$1 75	2½-inch	$2 75
3-inch	2 25	3½-inch	3 25
4-inch	2 50	4½-inch	3 50

Sheet Iron Brad Pans.....₱ 2 10c
American Broilers.....₱ doz. $12·00
Tinmeh's Machines.....dis 5 %
Sad Irons.....₱ ℔, 4 c
Brass Kettles.—Ansonia.....32c

PITTSBURGH.

The following are the Card rates of Lewis, Oliver & Phillips, H. B. Newhall, 11 Warren St., New York, Agent. Iron, standard list assorted sizes, for large orders, c, card rate, 2 % off net.
Flat Rail (1¼x¼), punched and coun'sunk..4·4c ₱ ℔ net
Iron Wedges.....4½c ₱ ℔ net
Norway Nail Rods.....9½c ₱ ℔ net
Crow Bars (in ordering please state whether "Wedge" or "Pinch" point).....5c ₱ ℔ net
Beetle Rings.....8½c ₱ ℔ net
Fence Pickets—
⅝ round, bent to shape, 30c ₱ ft. of fence, less 15 % off net.
Discount off Standard List.
Carriage and Tire Bolts (new list).....70&10 % off net
Plow Bolts.....30, 10&5 % off net
Stove Bolts.....15 % off net
Machine and Square Head Bolts.....30&10 % off net
Coach and Lag Screws.....30&10 % off net
Bolt Ends.....35 % off net
Pat. Hot Pressed Square and Hexagon Nuts, small sizes, from 3-16 to ⅜ in.....7½c ₱ ℔ off net
Pat. Hot Pressed Square and Hexagon Nuts, large sizes, from 7-16 to 2 in.....6 c ₱ ℔ off net
Washers, all made from new band iron, small sizes, from 3-16 to ⅜ in.....9 c ₱ ℔ off net
Washers, all made from new band iron, large sizes, from 7-16 to 1⅜ in.....7 c ₱ ℔ off net
Nuts and Washers in 25 lb. boxes, 1c ₱ ℔ ex. Nuts and Washers in lots less than one keg each size, 1c ₱ ℔ ex.
Nuts and Washers in 5 lb. boxes, 1½c. ₱ ℔ ex.
Harrow Teeth, in lots of 1 ton or more, packed in casks, 1 in. diam. 3¾c ₱ ℔ net; ⅞, ¾ in. diam. 3¾c ₱ ℔ net; ⅝ in. diam. 4c ₱ ℔ net.
Patent Headed Harrow Teeth, packed in casks, ¾c ₱ ℔ ex
Skein Bolts, in bulk, in lots of 1 keg or more, ⅝ in. diam. 5½c ₱ ℔ net; 9-16 in. diam. 6½c ₱ ℔ net; ½ in. diam. 7½c ₱ ℔ net. 1c ₱ ℔ extra when less than 1 keg of each size is ordered.
Screw Hook-and-Eye Hinges, ¾ to 1 in. diam. 9c ₱ ℔ net; ⅝ in. diam. 10c ₱ ℔ net; ½ in. diam. 12 c ₱ ℔ net.
Screw and Strap Hinges, in lots of 100 pairs or more, 14 to 5/8 in. long, 5½c ₱ ℔ net; 8, 10 & 12 in. long, 6½c ₱ ℔ net
Strap and T Hinges.....20 & 10 % off net, delivery as customary.
For purchases amounting to $250 between May 30th and December 31st, 5 % extra off.
Screw Hitching Rings.....$5 25 ₱ 100 net
Duck Neat Tuyere Irons.....$14 50 ₱ doz net
Cast Iron Washers.....₱ ℔ 4c net
Bridge and Roof Bolts—
1 to 2 in. diam. over 8 ft. long..... ₱ ℔ 4 c net
1 to 2 in. diam. from 4 to 8 ft. long..... " 4½c net
1 to 2 in. diam. from 1½ to 4 ft. long..... " 4½c net
⅝, ¾ and ⅞ in. diam. over 4 ft. long..... " 4½c net
⅝, ¾ and ⅞ in. diam. from 1½ to 4 ft. long " 5¼c net
Bridge bolts with upset ends.....½c. ₱ ℔ extra
Wrought iron plates, punched.....3c. ₱ ℔ net

WAGON HARDWARE.

Wagon Box Strap Bolts—
10 in. long by 7-16 at Screw End, ₱ set of 8 bolts.. 55c
12 " ½ " " 8 " .. 70c
10 " 9-16 " " 8 " .. } 90c
12 " 9-16 " " 8 " .. }
14 " 9-16 " " 8 " .. } $1 00
10 " ⅝ " " 8 " .. }
12 " ⅝ " " 8 " .. } 1 00
14 " ⅝ " " 8 " .. }
16 " ⅝ " " 8 " .. 1 20
5c ₱ set for each additional inch over 14 in. All lengths made.
In ordering Box Strap Bolts please give diameter at Screw End.
Wagon Box Rods, narrow track, each.....18c
" " wide track, each.....20c
Single Tree Irons, ₱ set of four pieces.....55c
Wrought Iron Bolster Plates, 2¾ in. wide, ₱ set.....60c
" " 3 " " 62c
" " 3½ " " 70c
Wagon Brake Ratchets, each.....16½c
" " finished with guard, each..45 c
Wrought Hammer Straps, heavy pattern, each.....16 c
" " light " each.....13½c
" Rub Irons, each.....11 c
Stay Chain Hooks, each.....8 c
Double and Single Tree Clips, figure 1, each.....9 c
" " " 2, each.....10 c
" " " 3, each.....12 c
Strap Bolts, Rods, Single Tree Irons, Bolster Plates, Brake Ratchets, Hammer Straps, Rub Irons, Stay Chain Hooks and Clips, in lots of 50 sets.....dis 25 %
Wagon Box Staples, 1¼ to 2¼ in. to clinch. ₱ 1000 $11 00 net
" " " Bevel Box Iron, to rivet on. ₱ 1000 7 50 net
Neck Yoke Eyes, each.....4½c net
" " with ⅝ rings, each.....7½c net
King Bolts, ⅝, 1, 1⅛, and 1¼ in. diam.....₱ ℔ 4½c net
Wagon Rivets, ex. large, flat, oval and steeple head, ¼ in. diam. all lengths.....8½c net
" " ⅜ " " " .....9½c net
" & Nails, in 5 ℔ paper boxes..... " 1c extra
" in 25 ℔ wood " ..... " ¼c extra
Wagon and Hinge Nails, ¼ in.....₱ ℔ 17 c net
" " " 5-16 in..... " 19 c net
Double Tree Plates..... " 8½c net
Coupling " ..... " 5½c net
Tongue " ..... " 9 c net
Neck Yoke Plates..... " 11 c net
Tongue Cap Iron, 1¾, 2 & 2¼ in. wide, same price ₱ ℔ as Band Iron.
Wagon Chains, Stay Lock and Tongue, 5-16 in, ₱ ℔ 10½c net. ¼ in., 11½c. net

DETROIT.

(Reported by Messrs. Jewett & Root.)

Tin Plate.—Best Charcoal | Copper Bottoms.....34c
IC, 10x14.....$11 50 | **Planished Copper.**—
IX, 10x14..... 14 25 | Sheathing, 14x48..... 41c
XX, 10x14..... 17 00 | Boiler Size, No. 7..... 43c
IC, 12x12..... 13 00 | " " No. 8..... 43c
IX, 12x12..... 14 75 | " " No. 9..... 43c
IC, 14x20..... 12 50 | Tinning ₱ sheet, 14x48 No. 10c
IX, 14x20..... 15 25 | " " No. 7 11c
XX, 14x20..... 18 00 | " " " 8 14c
XXX, 14x20..... 20 75 | " " " 9 16c
XXXX, 14x20..... 23 50 |
DC, 100 Plate..... 11 00 | **Pig Tin.**—
DX " ..... 12 75 | Large Pigs.....29c
DXX " ..... 16 50 | Small Pigs.....29c
DXXX " ..... 19 25 | Bars.....30c
DXXXX 100 Plate.. 22 00 | **Solder.**—No. 1..... 17c
IX, 14x14..... 23 50 | No. 2..... 16c
IC, 10x14 W..... 11 00 | **Bright Wire.**...dis 57½ %
IX, 10x14 W..... 13 75 | **Sheet Iron.**—
Roofing Tin.—Best Char. | No. 18 Am. Com..... 4 80
IC, Terne, 14x20.....$10 25 | No. 24 Am. Com..... 5 00
IX, " 14x20..... 13 00 | Pat. Am. Russia "A,"
IC, Terne, 20x28..... | Nos. 24, 25 & 26.....14½c
IX, " 20x28..... | Pat. Planished Russia.. c
Coke Tin.— | Russia Nos. 9, 10, 11 & 12... c
IC, 10x14 Coke..... $9 50 | W. D. WOOD'S & CO.'S SHEET IRON.—
IX, 10x14, Coke .... 12 25 | Nos. 15 to 20 Smooth $6 10
IC, 14x20, " .... 10 50 | " 21 to 24..... 6 30
Sheet Zinc.— | " 25 & 26..... 6 50
Any width.....9½c | " 21 to 24 Char'l.. 7 80
Copper.— | " 25 & 26 " .. 8 00
Sheathing.....33c

A. PARDEE, Hazelton, Pa. J. G. FELL, Phila.

A. PARDEE & CO.,

303 Walnut St.,

PHILADELPHIA'

MINERS AND SHIPPERS OF

Lehigh Coals.

The following superior and well-known Lehigh Coals are mined by ourselves, and firms connected with us, viz.

A. Pardee & Co. { HAZLETON, CRANBERRY, SUGAR LOAF
G. B. Markle & Co. { JEDDO, HIGHLAND.
Pardee, Bro. & Co. LATTIMER

OFFICES:

WM. LILLY, Mauch Chunk, Pa.
WM. MERSHON, Agent, 111 Broadway N.Y
WM. H. DAVIS, Agent, Easton, Pa

Steel.

THREE CLASS PRIZE MEDALS, CLASSES 1, 21, 22, Great Exhibition of Industry, LONDON, 1851.

MEDAL OF HONOUR, SOCIETY OF ARTS & INDUSTRY, LONDON, 1856.

1st CLASS PRIZE MEDAL, CLASS 1A UNIVERSAL EXHIBITION OF INDUSTRY PARIS, 1855.

COCKER BROTHERS,

SUCCESSORS TO

SAML. COCKER & SON,

(Established 1752.)

SHEFFIELD, ENGLAND

MANUFACTURERS OF

CAST, SPRING, SHEET, AND BLISTER STEEL, OF EVERY DESCRIPTION.

BEST CAST STEEL WIRE, ADAPTED SPECIALLY FOR MECHANICAL PURPOSES; Also for ROPES, NEEDLES, FISH HOOKS, PINS, CRINOLINE, &c.

BEST CAST STEEL FILES, SAWS, EDGE TOOLS, HACKLES, GILLS, CARD CLOTHING, CARD TEETH, HACKLE AND GILL PINS, FISH HOOKS, NEEDLES, &c.

ALSO

GENERAL MERCHANTS.

Agent, JONATHAN HATTERSLEY, Cincinnati, O.

WM. JESSOP & SONS,

MANUFACTURERS OF

STEEL,

AND IMPORTERS OF IRON

SHEFFIELD, ENGLAND.

PRINCIPAL DEPOTS:

NEW YORK, Nos. 91 and 93 John Street.....BOSTON, No. 141 Federal.

ST. LOUIS, No. 714 North Second Street.

AGENCIES:

PHILADELPHIA, Jas. C. Hand & Co.....PROVIDENCE, Nightingale & Kilton.
CHICAGO, Crerar, Adams & Co.....NEW ORLEANS, Folger & Co.
CINCINNATI, Augustus Wessel.....SAN FRANCISCO, Huntington, Hopkins & Co.

F. W. MOSS,

Successor to **JOSHUA MOSS & GAMBLE BROS.**

FRANKLIN WORKS, WADSLEY BRIDGE WORKS, WALKLEY WORKS, } SHEFFIELD, ENGLAND.

MANUFACTURER AND IMPORTER OF

STEEL AND FILES.

Principal Depots: 80 John St., N. Y., and 512 Commerce St., Phila.

MOSS & GAMBLE SUPERIOR C. S. "FULL WEIGHT" FILES,

Cast Steel Hammers and Sledges. Also, "M. & G." Anvils and Vises.

WARRANTED CAST STEEL, especially adapted for DIES and TURNING TOOLS, DRILLS, COLD CHISELS, PUNCHES and all kinds of MACHINISTS' TOOLS.
Celebrated Improved Mild Centre Cast Steel, for Taps, Reamers, and Milling Tools, warranted not to crack in hardening Taps of any size.
Swede Spring Steel, especially adapted to Locomotive and Railway Car Springs.
English Spring and Plow Plate Steel. Also, manufacturer of

Best Cast Steel, Shear, German, Round Machinery, Hammer, Fork and Shovel Steel

And GENERAL MERCHANT.

A. M. F. WATSON, General Agent.

WILSON HAWKSWORTH, ELLISON & CO.,

MANUFACTURERS OF

STEEL, STEEL WIRE, &C.,

AND GENERAL MERCHANTS,

CARLISLE WORKS, SHEFFIELD, ENGLAND.

AGENCIES:

New York, 72 John Street.
Philadelphia, 505 Commerce Street.
Boston, 21 Oliver Street.
New Orleans, La., 111 Gravier St.

BARROW HÆMATITE STEEL COMPANY,

LIMITED.

BARROW IN FURNESS,

LANCASHIRE, ENGLAND.

MANUFACTURERS OF

Steel Rails, Tyres, Wheels,

Axles, Shafting, Boiler & Ship Plates, Bessemer Pig Iron, etc., etc.

CHAS. CONGREVE & SON,

Sole Agents for the United States,

104 & 106 John Street, opposite Cliff Street, NEW YORK.

J. & RILEY CARR,

MANUFACTURERS OF SUPERIOR

STEEL

For Tools, Cutlery, Saws, Files, Augers, Gimblets, &c.; Sheet Cast Steel for SPRINGS AND STAMPING COLD;

ALSO THE CELEBRATED

DOG BRAND FILES,

Unsurpassed, if equaled in quality.

Bailey Lane Works, Sheffield, England.

Warehouse, 82 John St., New York.

Established 1810

CORPORATE MARK STANCH

HENRY MOORE, Attorney.

Steel.

SANDERSON BROTHERS & COMPANY,

(LIMITED)

MANUFACTURERS OF THE

CELEBRATED CAST STEEL,

Warranted Most Superior for Tools and Granite Rock Drills.

DARNALL WORKS, ATTERCLIFFE FORGE, WEST STREET WORKS, } SHEFFIELD, ENGLAND.

IMPORTERS OF FILES,

AND

AGENTS FOR ARMITAGE'S GENUINE MOUSEHOLE ANVILS.

NEW YORK, Edward Frith, 16 Cliff.
BOSTON, H. L. Richards, 18 Batterymarch.
PHILADELPHIA, Wm. H. Sowers.
CLEVELAND, O., Cleveland, Brown & Co.
NEW ORLEANS, Rich'd Rhodes, 71 Camp.
BALTIMORE, Md., Wm. H. Cole.
MONTREAL, Saint Paul St.
NEW HAVEN, Ct., Atwater, Wheeler & Co.

FRANCIS HOBSON & SON,

97 John Street, NEW YORK,

Sole Manufact'rs of **"CHOICE"** Extra Cast Steel.

Manufacturers of all Descriptions of Steel.

Manufacturers of Every Kind of Steel Wire.

Don Works, Sheffield, England.

JOHN HOGAN, Agent.

S. & C. WARDLOW,

MANUFACTURERS OF THE CELEBRATED

Cast and Double Shear

STEEL,

In Bars, Sheets and Coils, for fine Pen and Pocket Cutlery, Table, Carving, Butcher and Shoe Knives, Turning Tools, Dies, Files, Clock or other Springs, Saws and Tools of every variety.

SHEFFIELD, ENGLAND.

Office of S. & C. WARDLOW, 13 Gold Street, New York.

In calling the attention of consumers of Steel in any of the parishes above enumerated, we would respectfully assure them of our ability to supply an article, that cannot be excelled in quality, temper, and adaptation in all respects to the various purposes for which it may be required. Half a century of practical experience in all departments of Steel manufacture, a long established reputation in England, and the Continent of Europe, and in the Eastern States principally of this Country, encourage us to solicit a universal trial of our Steel for the above or other purposes for which a first class material in quality, temper, and durability is needed.

G. SANDERSON & CO.,

Manufacturers of all descriptions of

STEEL.

Bailey Street and Broad Lane Steel Works, } SHEFFIELD, ENGLAND.

Particular attention is paid to quality and temper for

Files, Saws, Table and Pocket Cutlery, Augers, Shovels, &c.

ALSO STEEL of superior quality for **Turning Tools, Taps, Dies, Drills, &c.**

Hot and Cold Rolled Sheets for Clock Springs, Corset Clasps, Pens, &c.

☞ *Makers of the Celebrated ROCK BORING DRILL STEEL.*

Warehouse, 57 John Street, New York.

JOHN A. GRISWOLD & CO.,

Troy, N. Y.,

Office in New York City, 56 BROADWAY.

MANUFACTURERS OF

Bessemer Railway Steel,

MERCHANT BARS, TIRE AND SHAFTING,

Railroad Iron, Pig Iron, Merchant and Ship Iron,

AGENCIES IN BOSTON AND PHILADELPHIA.

D. G. GAUTIER & CO.,

MANUFACTURERS OF

Hammered and Rolled STEEL of every description

JERSEY CITY, NEW JERSEY.

DUDLEY G. GAUTIER. JOSIAH H. GAUTIER.

CHROME STEEL COMPANY,

MANUFACTURERS OF

CHROME CAST STEEL,

WARRANTED SUPERIOR TO ANY STEEL IN THE MARKET—EITHER ENGLISH OR AMERICAN—FOR EVERY PURPOSE.

Principal Office, **110 Liberty St., N. Y., WILLIAM TOOTHE,** General Agent.

AGENCIES,

Potter & Hoffman, Philadelphia, Pa. Harris, Rice & Co., St. Louis, Mo. Kimbark Bros. & Co., Chicago, Ills. Wood & Leggat, Hamilton, C. W.

Works, Corner of Keap St. & Kent Ave., Brooklyn, E. D.

Steel.

Sheffield Steel Works,

(Established in 1848.)

SINGER, NIMICK & CO.

Pittsburgh, Pa.,

Manufacturers of **Extra Quality Tool**

CAST STEEL,

Patent Rolled

SAW PLATES,

All descriptions of **Cast and German**

Spring and Plow Steel

Elliptic and Side Springs, Seat Springs.

AXLES, STEEL TIRE,

Plow Wings, Shares, Cultivators, Reaper Bars, ow Bars, &c., &c.

Warehouse, 83 Water and 100 First Streets.

ISAAC JENKS & SONS,

Minerva & Beaver Iron & Steel Works

Wolverhampton, England,

MANUFACTURERS OF

"Jenks" Spring Steel, Cast and Swedes Spring Steel,

TIRE, TOE CORK, SLEIGH SHOE, BLISTER & PLOW STEEL.

Also, Plow and other Iron.

VAN WART & McCOY, Agents,

43 Chambers St., New York.

A full assortment of "Jenks" Spring Steel in stock.

MILLER, BARR & PARKIN,

Crescent Steel Works,

PITTSBURGH, PA.

Manufacturers of all descrip? of

STEEL

EQUAL TO ANY IN THE MARKET.

Office.....339 Liberty St.,

PITTSBURGH, PA.

Gunpowder.

GUNPOWDER

DUPONT'S

Sporting, Shipping, and Mining

POWDER.

DUPONT'S GUNPOWDER MILLS,

ESTABLISHED IN 1801,

Have maintained their great reputation for 70 years. Manufacture the

Celebrated Eagle Ducking, Eagle Rifle, and Diamond Grain Powder.

Also, SPORTING, MINING, SHIPPING, AND BLASTING POWDER,

of all kinds and descriptions.

For sale in all parts of the country. Represented by

F. L. KNEELAND

70 Wall Street, NEW YORK.

GUN-POWDER

LAFLIN & RAND POWDER CO.

21 Park Row, New York,

invite the attention of the the Hardware Trade to their facilities for delivering

BLASTING, MINING and RIFLE

POWDER

IN EVERY PART OF THE UNITED STATES from having agencies and magazines at all prominent points, beside our works at

Newburg, Saugerties, Kingston, and Catskill, N. Y.; Scranton, Carbondale and Pottsville, Pa.; Baltimore, Md., and Platteville, Wis.

The superiority is well known of our brands of Rifle Powder

Orange Rifle, Orange Ducking Lightning, Audubon.

SAFETY-FUSE at wholesale.

CHICAGO.

(Reported by Markley, Alling & Co.)

Agricultural Implements.—
Scythes—Dunn Edge Tool Co.....dis 30 %
Hay and Manure Forks—Otsego extra C. S.....dis 30 %
Hoes and Garden Rakes—Jackson and Otsego...dis 30 %
Scythe Stones.....dis 25 %
Scythe and Bush Snathes.....dis 25 %
Harvest Rakes and Barley Forks.....dis 25 %
Revolving Horse Rakes.....dis 25 %
Handles—Fork and Shovel.....dis 25 %
Cradles—Nithington, Cooley & Co.....dis 45 %
—Genuine Morgan.....₱ doz net $34 00

Augers and Bits.—
Ives' extra C. S....dis 30 % | Snell's.....dis 10 %
Jennings'.....dis 5 % " Car Bits.....dis 10 %
Cook's.....dis 30 %

Axes.—Amoskeag Yankee.....₱ doz $12 00
Amoskeag Crescent..... " 13 00
Hunt's Bronzed..... " 12 00
Jefford's Silver Steel..... " 12 50
M. A. & Co. Clipper..... " 12 50
Mann's Red Warrior, Beveled..... " 12 50
" Double Bitt..... " 25 00
Handled Axes..... " 15 00
" " Boys..... " 12 00
Kennebeck..... " 11 00

Bolts.—Carriage and Tire.....dis 70 @ 10&5 %
Cast Barrel and Shutter.....dis 20&10 %
Wrought Iron Barrel.....add 10 %
" Square.....net list

Butts.—Cast Fast Joint, Narrow.....dis 30 %
Cast Fast Joint, Broad.....dis 20 %
" Loose Joint.....dis 50&5 %
" " Pin, Reversable.....dis 40 %
" " Japanned.....dis 35 %
" " Sliver Tipped.....dis 35 %
Wrought Narrow, Fast Joint.....dis 30 %
" Broad " " .....dis 30 %
" " Loose " .....dis 37 %
" Loose Pin.....dis 30 %
" Table.....dis 30 %
" Brass.....dis 10 %
Garretson's Blind Butts, Wood.....doz sets $1 75
" " Brick.....doz sets 2 75
Parker's " Wood.....doz sets 1 85
" " Brick.....doz sets 2 75

Casters.—Iron Plate.....dis 25 %
Brass Wheel Plate.....dis 25 %
Porcelain Wheel Plate.....dis 45 %
" " Bed.....dis 25 %
Iron Wheel Bed.....dis 25 %

Chisels.—Butcher's Tanged Firmer.....dis 30 %
" Long Paring.....dis 30 %
Witherby Socket Framing.....dis 50&20 %
" " Firmer.....dis 50&20 %
" " Corner.....dis 50&20 %
" " Slicks.....dis 50&20 %

Coffee Mills.
Box 4 Iron.....$ 3 75 | Box 85 Cast Steel.....$12 00
" 103 " ..... 5 25 | Side 50..... 4 75
" 102 " ..... 6 25 | " 60..... 5 75
" 107 Britannia... 7 50 | " 70..... 7 25
" 106 " ... 8 50 | " 90..... 18 00
" 25 Union..... 10 50 | " 15 Union..... 7 00
" 35 " ..... 14 00 | " 20 " 8 00
" 75 Cast Steel.. 19 50

Cutlery.—American Table.....dis 20 %
" Pocket.....dis 25 %

Door Springs.—Torry.....₱ doz $5 00
Rubber..... " 4 00
Boon's..... " 5 00

Drawing Knives.—Witherby Tool Co....dis 50&20 %
Ohio Tool Co.....net list

Files.—Butcher's.....$7 00 £
Nicholson's.....$5 00 @ $5 50 £

Hammers.—
Maydole's.....net list | Yerks & Plumb.....net list
| Cheney.....net list

Handles.
Extra Axe...₱ doz. $3 00 | Coal Pick, No. 1..₱ doz $2 00
No. 1 Axe.... " 2 25 | Sledge, No. 1.... " 2 00
No. 2 Axe.... " 2 00 | Hatchet..... " 65
R.R. Pick, No. 1 " 2 00 | Hammer, A. E.. " 65

Hatchets.—
| 1 | 2 | 3
Amoskeag Shingling.....$2 25 | $3 00 | $3 75
" Claw..... 2 75 | 3 50 | 9 22
" Lath..... 2 50 | 3 25
" " Solid Steel..... 12 00

Hinges.—Strap and T.....dis 30&10%
Screw Hook and Strap, 6 to 12 in.....8c. ₱ lb
" " 14 to 24 in.....6½c. ₱ lb
Hook and Eye Hinges.....net 12c. @ 16c. ₱ lb
Gate, No. 35, State.....₱ doz $3 50
" No. 3, In and Out..... " 3 50
" Hinman's Pat..... " 2 50

Hog Ringers.—Hill's Patent.....₱ doz $6 00
Hill's Patent Rings.....₱ 100, 25c
" Tongs.....₱ doz $5 00

Horse Nails.—Northwestern, 8d.....24c
Ausable, 8d.....24c
Globe, 8d.....26c

Kettles.—Brass.....5ic | Enameled.....dis 30&10 %

Locks and Knobs.—
Norwalk Lock Co. dis 45 % | EagleLock Co.....dis 15 %
Branford " ..dis 45 % | Am. Pad Locks.....dis 35 %
| Cont'al Lock Co...dis 10 %

Meat Cutters.—
Haven's Patent ...net list | Woodruff Patent...net list
Hale's " ...dis 10 % | Stowe's Sausage Stuffers.....net list
| Enterprise Patent...dis 5 %

Molasses Gates.—
Stebbin's Patent ..dis 50 %

Nails.—10d to 60d.....per keg $4 00

Oil Stones.—Washita No. 1.....net 30c ₱ lb
Washita Slips.....net 60c "
Hindostan No. 1.....net 9c "
" Axe.....net 10c "
" Slips.....net 15c "

Picks and Mattocks.—Picks, Railroad, Axe Finish.....₱ doz $12 00
Picks, Coal, Axe Finish..... " 10 00
Mattocks, L. C., Axe Finish..... " 15 00
" S. C., " ..... " 14 50
Grub Hoes, Axe Finish, No. 2..... " 1 00

Planes.—Ohio Tool Co., Bench.....dis 30 %
Sciota.....dis 35 %
A. Howland & Co., Bench.....dis 30 %
" Fancy.....dis
Bailey Patent Iron.....dis 15 %
Plane Irons, Butcher's.....dis 30 %

Rivets.—Iron dis 10 @ 15 % | Copper, No. 7, net, ₱ lb, 50c
Tinned.....dis 10 @ 15 %

Rules.—Stanley Rule and Level Co.....dis 50&10 %
Hubbard & Curtiss Mfg. Co.....dis 50&10 %

Sad Irons.—Best A No. 1.....₱ lb, 4c
" Copper Face Star.....₱ lb, 4½c

Sandpaper.
Baeder & Adamson's No. 0 to 1½...per ream, net $4 50
" No. 2 to 3..... " net 5 00
Wiggin & Stevens, No. 0 to 1½.....₱ ream, net, $4 50
" No. 2 to 3..... " " 5 00

Sash Locks.—Champion.....₱ gross, net, $12 00
Hopkins & Dickinson.....dis 10 %
Judd's Patent.....dis 10 %
Corbin's Patent.....dis 10 %
Clark's Patent.....dis 20 %

Saws.—H. Disston & Sons.....dis 10 %
Champion X Cut.....₱ foot, net, 60c
M. A. & Co. X Cut..... " " 50c
Lightning Cut..... " " 66c

Screws.—American Screw Co.—Iron...new list dis 50 %
American Screw Co.—Brass.....dis 50 %

Shovels and Spades.
Ames' Black Shovels.....₱ doz $14 50
" Polished " ..... " 15 50
" Patent " ..... " 18 00
Alling " " ..... " 16 00
" " Molders'..... " 18 00
Crane's Black " ..... " 11 50
" Polished " ..... " 12 00
Smith's " " B. S. L. H. Rd. Pt.... " 13 50
" " " B. S. D. H. Rd. Pt.... " 14 00
Ames' Black Spades..... " 16 00
" Polished " ..... " 17 00
" Patent " ..... " 17 50
Alling " " ..... " 16 00
Crane's Black " ..... " 12 50
" Polish'd " ..... " 13 50

Scoops.—Alling Steel Polished, No. 2.....₱ doz, $13 50
Alling Steeled Polished, No. 3..... " 14 00
" " " No. 4..... " 14 50
" " " No. 5..... " 15 50
" " " No. 6..... " 16 50
" " " No. 7..... " 17 50
" " " No. 8..... " 18 50
" " " No. 10..... " 21 50
Crane's Polished, No. 5..... " 13 50
" No. 6..... " 14 50
" No. 7..... " 15 50
" No. 8..... " 16 50
Crane's Black Coal, No. 4..... " 17 50
" No. 5..... " 18 00
Preston, Black Scoops No. 1..... " 12 00
" " No. 2..... " 12 50
" " No. 3..... " 13 00
" Half Pol. Scoops No. 1..... " 12 50
" " No. 2..... " 13 50
" " No. 3..... " 14 50
Lippincott, Half Pol. No. 2..... " 15 00
" " No. 3..... " 16 00

Wrenches.—Taft's.....dis 60 %
Coe's Imitation.....dis 50 %
Coe's Genuine.....dis 35 %

Wringers.—Novelty Clothes Wringer.....₱ doz $65 00
Universal Clothes Wringer..... " 69 00

Chicago Metal Market.

(Reported by Frank Sturges & Co., 72, 74 & 76 Lake St.)

Tin Plate.
10x14, IC, Ch'l. Good.$ | 14x20, IX, Ch'l Best..$15 00
10x14, IC, " Best. 11 50 | 14x20, IXX, " " . 17 50
10x14 IX, " " 14 00 | 14x20, IXXX, " " . 2 00
12x12, IC, " " 12 00 | DC, 100 Plate, " " . 11 50
12x12, IX, " " 14 50 | DX, " " . 14 50
14x20, IC, " " 12 50 | DXX, " " . 16 50
| DXXX, " " . 19 00

Roofing IC, Charcoal, Best.....11 00
Roofing IX, Charcoal " 13 50
20x28, IC, Charcoal Roofing, Com.....21 00
20x28, IC, " Good.....21 50
20x28, IC, " Best.....22 00
20x28, IX, " " 26 50
10x14, IC, Coke Plates.....10 00 @ 10 50
14x20, IC, " .....10 50 @ 11 00
10x20, IC, " 16 50

Block Tin.—
Large Pigs.....32c | Bars.....30c
Small.....32c | Straits, 2c. higher.

Zinc.—Sheet, 500 to 1000 lb. Casks.....9¼c
Loose Sheets.....10c
Slab Zinc or Spelter.....6½ to 7¼c

Copper.—Bottoms.....33c
Sheathing.....32c
Planished.....36c
" Boiler lengths.....40c
Ingot.....24c to 26c
Bolt.....40c

Braziers' Sheets.—
30x63, 6 to 10 lbs..₱ lb 41c | 30x60, 15 to 100 lbs..₱ lb 35c
30x60, 10 & 12 lbs.. " 38c |

Solder.—F. S. & Co.'s make.
Best Fine.....22c | Roofing.....18c
No. 1.....20c | Braziers' or Spelt. Sold..35c

Antimony.....18c

Babbit Metal—F. S. & Co.'s.....16c
No. 2.....14c

Sheet Iron.—

| Common. | Smoothe. Com. | Smooth Charcoal. | Smooth Juniata.
---|---|---|---|---
No. 24..... | 5 c | 6 c | 7½c | 9½c
25 & 26... | 5¼c | 6¼c | 7¾c | 9¾c
27..... | 5½c | 6½c | 8 c | 10 c

Galvanized Iron.....dis 20 %
No. 16 to 20.....12c | No. 24.....15c
21 to 24.....13c | 28.....16c
25 & 26.....14c

Russia Iron.— | No. 1 Stained.....19c
Perfect.....20c | In Sheets, 1c. higher.

American Russia.— | B.....12c
A.....15c | In sheets, 1c higher.

Lead.— | Lead Pipe, in full coils .8¼c
Pig..... 7¼c | Lead Pipe, when cut...8¾c
Bar..... 8¼c | Sheet Lead.....8¾c

Wire—Bright.....dis 35 %
Coppered.....dis 30 %

BOSTON.

(Reported by Macomber, Bigelow & Dowse, 156 to 164 Oliver St.)

Apple Parers.—Reading.....per doz $8 00

Augers.—Watrous Ship.....dis 10 %
L'Hommedieu Ship.....dis 15 %

Axes.—Forester's Favorite, Bronzed.....$12 50
Blue Jackets, Blue..... 12 00
Excelsior, Black..... 11 50
Chopper's Pride, Bronzed..... 11 00
Red Cross, Red..... 10 50
Red Cross, Handled..... 12 50
Boy's Handled Blue Jackets..... 12 00

Axe Handles.—Wadleigh's Oak—
A (Extra) $2·50. B (No. 1) $2·00. C (No. 2) $1·50 ₱ doz

Blind Hinges.—Washburn's.....per hundred set $9 50

Blind Fasts.—Washburn's.....per hundred set $5 75

Bolts.—Carriage. Phila., " Girard Works....dis 50&10 %

Borax.—Best Refined.....₱ lb 16c

Borers.—Angle, Backus'.....dis 30 %

Boring Machines.—Angle.....each $4 75
Common. Snell's quality.....each 3 75

Braces.—Barber's.....dis 40&5 %
Backus'.....dis 50 %
Spofford's.....dis 40 %

Brass Faucets.—L. F. & C.....dis 25 %

Butts.—Union Drilled Loose Joint.....dis 60&10 %
" " Wire Fast Joint.....dis 55 %
" " Acorn Loose Joint...dis 60&10 %
Brass Butts.....dis 30 %
Wrought Table Butts and Back Flaps.....dis 30 %
Wrought Narrow Butts.....dis 30 %

Cartridges.—" U. S. Cartridge Co."....dis 50 %

Chisels.—"Buck Bros.' Shank Goods....add 20 @ 22½ %
Socket.....add 22½ @ 25 %

Compasses and Dividers.—Bemis'.....dis 35 %
P. S. & W.....dis 25 %

Cordage.—Manila (usual trade dis.).....₱ lb, 16c
American Tarred Hemp Lath Yarn.....₱ lb, 10c

Corn Hooks.....per doz $2·75

Crow Bars.—Iron. Steel Points.....₱ lb, 5½c
" Sweet" Steel Bars.....₱ lb 11c
Brown's Steel Bars.....₱ lb 10c
K. P. & Co. Extra Drill Steel.....₱ lb 15c

Dividers.—Cook's Nickel Plated.....dis 15 %

Door Springs.—Stimson's Patent.—
No. 7, Light inside doors, $12·00.....dis 25 %
No. 8, outside " $18·00.....dis 25 %
Torrey's.....$4·00

Emery.—Alden.....₱ lb 7c
Wellington Mills.....₱ lb 10c

Files.—Earl Smith & Co.'s English.....$5 to £ gold
American.....$5 to £ currency, less 12½ %
Nicholson.....$5 to £ currency, less 1-½ %
" Regular Taper.....dis 12½&5 %
Stubb's Tapers, genuine, 3 in., $1·50; 3½, $1·62; 4, $1·88; 4½, $2 13; 5, $2·50.

Funnel Irons.—$2·50 2·50 2·50 3·25 per doz
5, 5½, 6, 7 inch.
Deep Flange.—$3·50 3·25 4·00
5, 5½, 6 inch.

Hammers.—Maydole.....dis 5 %
M., B. & D., solid cast steel, adze eye, No. 1, $10; 1½, $·75 " " " " bell face, No. 1, $11: 1½, $9·75.

Hangers & Rollers.—Novelty.....dis 30 %
Anti-Friction.....$1 75 per pair—dis 30 %

Hatchets.—Underhill Edge Tool Co.....dis 10 %
C. F. Dowse, warranted Cast Steel—
Shingling.....0, $4·75; 1, $5·25; 2, $5·75
Claw.....1, 5·75; 2, 6·25
Lathing.....1, 4·50
Axe Pattern.....1, $7·00; 2, 7·50
Broad....0, $5·75; 1, $6·50; 2, $7·50; 3, $9·25; 4, $10·75; 5, $12·75; 6, $14·75.

Hinges.—Strap and T, Stanley Works.....dis 20&10 %
Plate, Loose and Fast Joint.....₱ lb 7½c
Wrought Screw Hook.....₱ lb 8c

Hoes.—Ely Balch & Co. M., B. & D.'s list, 1874...dis 25 %
Remington, M., B. & D.'s list, 1874.....dis 30 %

Lead.—Sheet and Pipe.....7½c—less 10 %

Locks.—P. & F. Corbin.....new list dis 45&5 %
Nashua.....dis 45&5 %

Manure Forks.—
Myers & Ervien, M., B. & D.'s list, 1874.....dis 25 %
Peck, Clark & Co., " " " .....dis 25 %
Shumway & Co., " " " .....dis 30 %

Mattocks.—K. P. & Co.. axe finish, long cutter..$13 75
Snort cutter..... 13 50

Metal.—Babbitt. No. 1, 35c; 2, 25c; 3, 16c; 4, 15c ₱ lb

Nails.—10c. and larger.....$4 00

Padlocks.—Wilcox.....dis 50&2 %
All Brass. 2¼ inch. 2 keys. job lot.....$9 00

Picks.—K. P. & Co., Polished Points—
5 to 6.....per doz $9 00; 6 to 7, $9 50

Pins.—Universal Hat and Coat all wood—
2 in.....₱ gross $2 50; 3 in., 3 50; 4 in., 4 50—dis 25 %

Potato Digger.—
" Partridge," 6 square tine.....₱ doz $12 00
Shumway & Co., 6 round tine..... ₱ doz 9 00

Pulleys.—Clark & Co.'s Axle, 2 in.....per doz 42c

Plated Ware.—Rogers Bros.... new list dis 40&10 %

Plumb & Levels.—" Davis" Pat. Adjustable—
No. 1, Iron and Wood Center Levels.....dis 50 %
No. 2, First Quality Levels.....dis 60&10 %
No. 3, Iron Pocket " .....dis 35 %
No. 4, Level and Plumb Glasses.....dis 60&10 %
No. 5, Iron Pocket Levels, per square and straight edge.....dis 50&10 %
No. 6, Improved Iron Bench Planes.....dis 20&10 %

Pocket Knives.—Conn. Cutlery Co.....new net list

Rakes.—Cast Steel, garden.....dis 30 %
Malleable.....dis 25 %

Rail Burn Hoof.—For Novelty and Anti-Friction Hangers.....per foot 7c., dis 33 %

Rivets.—Black.....dis 25 %
Carriage, oval head, Nos. 3, 4, 5, 6, 7, 8.
13 13 14 14 15 16c ₱ lb net

Sad Irons.—Bliss & Drake.....₱ lb 4

Sand Paper—0 to 2, $4·25: 2 to 3, $4·75.....dis 10 %

Saws.—Disston's.....dis 12½ %
Lightning X cut, Boynton's.....per foot 6½c
" Saw Blades, 32 inch.....per doz $7 00
" Framed Saws.....per doz 8 50
Common " " .....per doz 6 00
Disston " " .....per doz 9 00
One man X cut.—Lightning.....$2 75 each
Disston's $3·00 each.....dis 12½ %
Wheeler, Madden & Clemson.....dis 15 %
" " " Mill.....dis 25 %
" " " Circular.....dis 25 %

Screws.—American Screw Co.....revised list dis 52½ %

Scythe Stones.—
"Willoughby Lake," first quality.....₱ gross $6·50
" " second quality..... " $4·00

Shovels.—O. Ames.....new list dis 12½ %
M. B. & D.....new list dis 12½ %

Spading Forks.—M. & E.....dis 25 %

Stone Pickers.—" Partridge," original...₱ doz $15 00

Tools.—Aiken's Pattern, 20 in set; Parr's..$8·00 per doz

Traps.—Oneida.....dis 20&5 %
Blake's.....dis 50 %

Vises.—K. P. & Co.'s Solid Box, Blacksmith....₱ lb 13c
Parker's Parallel.....dis 10 %
Backus.....dis 25 %
" Howards." Parallel.....dis 30 %

Wardrobe Hooks.—Wire to drive.....₱ gross $1 00

Weights.—Window Weights.....₱ lb 2¾c

Wire Netting.—Clinton Wire Cloth Co., Green, Drab or Black.....₱ ft 6c

Wrenches.—Genuine Wrenches, A. G. Coes..dis 40&5 %

Wringers.—
Novelty and Universal } Tub No. 2 } ..... market unsettled
Eureka.....per doz $60 00
Novelty Bench, No. 4.....market unsettled

Boston Metal Market.

(Corrected by Fuller, Dana & Fitz.)

Tin Plates.—₱ box
I. C. Char. 10x14 @ $12 00
I. C. Coke 10x14.. 9 50
Char. Roof. IC, 14x20. 11 25
Coke " IC, 14x20, 10 25

Pig Tin.— ₱ lb
Banca.....30c
Straits.....26c
English.....24c

Zinc.—Sheet..... ₱ lb 9½c

Iron.—Sheet Iron, Russia..... "
Sheet Iron, English..... "
" " American Refined..... "
" " Galvanized..... "
Plate Iron..... "
Swedish and Norway Bar Iron, gold.....₱ ton, $122 50
" " Shapes, gold.. " 130 00
Norway Nail Rods, first quality, gold.... " 145 00
" " second " " .... " 135 00
Best Refined Bar Iron..... " 67 50
The "Burden Best" Iron..... " 105 00
American Pig Iron, Foundry, No. 1, x..... " 35 00
" " " No. 2, x..... " 30 00
" " Gray Forge..... " 30 00
Scotch Pig Iron.....₱ ton 37 00 @ 40 00
Wrought Scrap Iron..... " 55 00

Steel.— ₱ lb
Eng. Tool..... 18c
American Tool 15c
" Mach 10½c
Bessemer..... 7¼c
German 10½c
Spring..... 7½c
Tire..... 6¾c
Sleigh Shoe..... "
Toe Calk..... 7¼c

Copper.— ₱ lb
Sheathing..... 33c
Bolt..... 33c
Ingot..... 20½c

Lead.— ₱ lb
Pig..... 6¾c
Sheet and Pipe..... 7-2c

Spelter...... ₱ lb 8c

Antimony...... ₱ lb 14c

ST. LOUIS.

Corrected weekly by Semple, Birge & Co

Anvils.—Armitage.....₱ lb, gold 13c
Peter Wright's..... " 14c
Wilkinson's..... " 12½c

Apple Parers.—Conqueror.....₱ doz, $9 00
Lightning..... 9 00
Turn Table..... 9 00

Axes.—Hunt s.....₱ doz $13 00 @ 13 50
Lippincott's..... " 12 00 @ 13 00
Lippincott's Pioneer..... " 13 00 @ 13 50
Simmons'..... " 12 00 @ 15 00

Axles.—Kritch & Crane Mfg. Co. s—
Patent Taper Axles.....new list net
Swelled Taper Axles.....new list net
Concord Axles.....new list net
Red Jacket Axles.....new list net
Common Axles, 1½ inch and upward.....₱ lb 8½c
" " ess than 1½ inch..... " 8¾c

Bellows.—" Best St. Louis make" 60c ₱ n. dis 20 %

Bells.—Troy, Church.....₱ lb, 45c
Light Brass Hand.....dis 50 %
Moore s, Cow.....dis 20 %

Bolts.—Arms, Bell & Co. s Machine.....dis 20 %
Arms, Bell & Co.'s Carriage and Tire.....dis 75 %

Cast Butt Hinges.—Western Butt Co.'s—
Narrow Fast Joint.....dis 33 %
Broad Fast Joint.....dis 50 %
" Loose " .....dis 60 %
Reversible.....dis 50&10 %
" Japanned and Silver Tipped.....dis 50 %
Loose Joint "Acorn" " " .....dis 55 %
Lull & Porter's Blind.....dis 50 %

Wrought Butts.—Narrow.....dis 25 %
Reversible.....dis 30 %
Broad.....dis 30 %

Chain.—Eng. Coil..3-16 ¼ 5-16 ⅜ 7-16 ½ in.
15 11 10 9½ 9 8c gold
Trace.....6½-10-2 c "
7-10-2 70c "
German Coil and Halter.....revised list add 10 %

Chisels.—Socket, Firmer or Framing.....dis 60 %

Clothes Wringers.—Crown.....₱ doz $60 00
Novelty..... " 69 00
Universal..... " 69 00
Monitor..... " 69 00

Corn Cutters or Hooks.—Solid Steel....₱ doz $4 00

Corn Knives.—Dunn E'ge T'ol Co.'s Clip..₱ doz $5 75
Disston's..... " 6 00

Crow Bars.—Steel Pointed..... ₱ lb 7c

Cutlery.—J. Russell & Co.'s.... } new list, dis 15 %
Lamson, Goodnow & Co.'s..... }
Landers, Frary & Clark's..... }

Files and Rasps.—
Nicholson's Files.....$5 00 less 5 %
Butcher's Mill.....$6 75
Heller's & Bros Horse Rasps.....dis 40 %

Forks and Hoes.—
Auburn Mfg. Co.'s Hay and Manure Forks.....dis 30 %
" " Handled Hoes.....dis 30 %
" " Planter Eye Hoes.....add 15 %
Winsted's Planter Eye Hoes.....add 15 %

Hammers.—Yerkes & Plumb.....dis 5 %
Masons' Hammers.....₱ lb 20c
Smith Hand Hammers..... " 28c

Handles.—Axe.....Extra. No. 1. No. 2. No. 3
$2·75 $2·25 $1·75 $1·00
Pick.....Extra. No. 1. No. 1½ No. 2
$2·50 $2·00 $1·75 $1·25
Smith & Montross Fork, Hoe and Rake.....dis 20 %

Harrow Teeth.—1 inch iron.....₱ lb 4½c
⅞ and ⅞ inch iron..... " 4¾c
⅝ inch iron..... " c
Barbed or Headed.....½c extra

Hatchets.—Hunt's.....dis 10 %
Simmons'.....dis 15 %

Hay Knives.—Lightning.....₱ doz $20 00
Dunn Edge Tool Co.'s.....₱ doz $14 50—dis 15 %
Fisher's..... " 16 50—dis 10 %

Hinges.—Strap and T—St. Louis make.....dis 25 %

Horse Nails.—Ausable.....22c rate
Northwestern.....22c "
National Patent Pointed.....21c "
" " " Extra Finished.....22c "

Horse Shoes.—R. I. (Perkin s pat.....₱ keg $6 5
Burden's..... " 6 50
Mule Shoes..... " 7 50
Rhode Island Trotting Shoes..... " 9 00

Locks and Latches.—
Jones & Nimick s.....revised list dis 40 %
Moorhead, Adams & Co.....revised list dis 40 %
Norwalk Lock Co.'s.....revised list dis 40 %

Mattocks and Grub Hoes.—
Klein, Logan & Co.'s Mattocks....₱ doz. $14 75 @ 15 25
" Grub Hoes, Oval Eye....₱ doz. 10 75 @ 12 00

Nails.—Wheeling.....$3 75 rates
Orders for 100 kegs 10c ₱ keg less.

Picks.—Klein, Logan & Co.'s R. R. and Clay ₱ doz.$11 00
Klein, Logan & Co.'s Coal..... " 8 50
" " " Poll..... " 11 00
" " " Stone..... " 14 50
" " " Tamping..... " 17 00

Planes.—Ohio Tool Co.'s.....dis 30 %
Sciota.....dis 40 %

Post Hole Augers.—Clark's Patent—
No. 1, ₱ doz. $27; No. 2, $30; No. 3, $32.....dis 20 %
Barton's Patent.....₱ doz $25—dis 20 %
Vaughn's " .....25—dis 10 %

Sad Irons.—Monitor Brand. Silver Polished..₱ lb 4c

Sash Weights.—Standard Solid Eyes.....₱ lb 3¾c

Saws.—Disston's.....dis 10 %
Hubbard, Lippincott, B. & Co.'s.....dis 10 %
Branch, Crooks & Co.'s.....dis 15 %
Livingston's Patent Buck.....net list

Screws.—American Screw Co.'s revised list....dis 50 %

Scythes.—
Dunn Edge Tool Co.'s.....new list dis 25 %
Paris Furnace Co.'s.....dis 30 %

Scythe Stones.—No. 1 Ind'n Pond ₱ gr's, $7 00
Extra Indian Pond..... " 7 50
Premium..... " 9 50 } dis 25 %
Diamond Grit..... " 13 50

Shovels, Spades and Scoops.—
Ames'.....dis 7½ %
Lippincott's.....dis 20 %
Rowland's Maxwell.....revised list dis 15 %

Sledges.—Smith s Stone or Coal Sledges—
Steel Face Polished.....₱ lb, 15c
Solid Cast Steel..... " 3½c

Spaths and Cradles.—Seymour Mfg. Co.'s..dis 25 %

Springs.—Cleveland Spring Co.'s—
Carriage and Express.....dis 10 %
Blue Seat Springs.....new list dis 15 %

Tacks.—Norway Tack Co.'s ½ weight.....dis 72½ %
Brass ½ weight.....dis 50 %

Thimble Skeins.—Pump & Skein Co.'s....dis 55&5 %

Traps.—Newmouse Patent.....dis 15 %

Vises.—Solid Box.....₱ lb 16c
Wilson Mfg. Co.'s.....dis 15 %

Wrenches.—Coes' Genuine.....dis 33½ %
Coes' Pattern.....dis 50 %
Tuft's.....dis 60 %

St. Louis Metal Market.

(Corrected Weekly by Messrs. E. Sellew & Co.

Tin Plate.
IC, 10x14, Char $11 00@11 50 | IX, continuous, 20 in. x 200 ft.....
IX, 10x14, " ... 14 50 | IC, 10x14, best
IC, 12x12, " ... 12 00 | Coke.....$10 50 @ 11 00
IX, 12x12, " ... 15 00 | IC, 10x14, good
IC, 14x20, " ... 13 50 | Coke..... 10 00
IX, 14x20, " ... 15 50 | IC, 10x20..... 17 00
IC, 14x20, Tern.$10 75@11 00 | IC, 14x20..... 10 00
IX, 14x20, " 13 00 | IC, 11x20, Coke Lead. 9 50
IC, 20x28, " 21 50@22 00 | IX, 10x14, punch'd for
IX 20x28, " 25 50@26 00 | Safes..... 10 00
IC, continuous, 20 in. x 200 ft.....

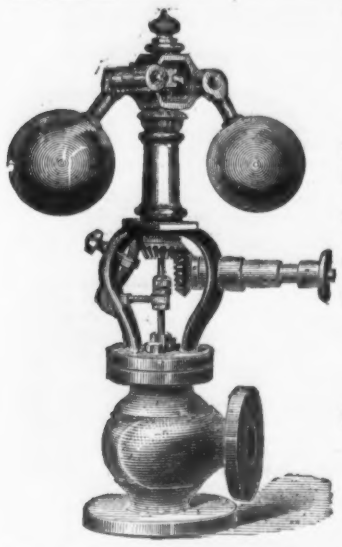
Block Tin.
Large Pigs.....28c | Bars.....30c
Small " .....29c |

Sheet Zinc.
Casks.....₱ lb 9¼c | Sheet.....₱ lb 10¼c

Solder.
No. 1, Refined, in bars or plate.....$17 00 @ 18 00
No. 2, " " " 16c
Pig Lead.....2½c

Sheet Copper.—18 to 100 lbs. Sheets 30x60.....32c
14 to 16 lbs., Sheets 30x60..... 35c
10 to 12 lbs., " and 20x52..... 38c
6 to 9 lbs., " " 38c
Tinned, 14 and 16 oz. 14x48..... 31c
Planished, 14 and 16 oz. 14x48..... 37c
" No. 7, 8 and 9..... 39c
Copper Bottoms..... 33c

Sheet Iron.— Com'n. Sm'th. Char'l. Jun'ta
No. 16 to 20..... 4½c 5½c 7½c 9½c
No. 22 to 24..... 4½c 5½c 7½c 9¾c
No. 26..... 4¾c 5¾c 7¾c 9¾c
No. 27..... 5 c 6 c 7¾c 9¾c
Galvanized Iron.....dis 25
Iron Rivets.....dis 25 %
Iron Wire.....dis 35 %
Copper & Market Wire.....dis 30 %
Copper Rivets and Burs.....dis 20 @ 25 %
Russia Iron.—Nos. 9, 10, 11 and 12. ₱ lb..... 30c
No. 1 stained. ₱ lb..... 18c
Imitation Russia. ₱ lb..... 15c
Retinned Stamped Ware.....dis 35



TO ALL WHO USE STEAM-POWER!

We will put our Governor on any Engine, and guarantee it to prove itself superior to all others.

If, after a fair trial, it does not, we will take it off at our own expense.

Shive Governor Co

BETHLEHEM, PA.

ALSO,

SHIVE'S PATENT WATCHMAN'S CLOCK AND DETECTOR.

The Best and Cheapest Watcher of the Watchman made

PRICE ONLY $15.

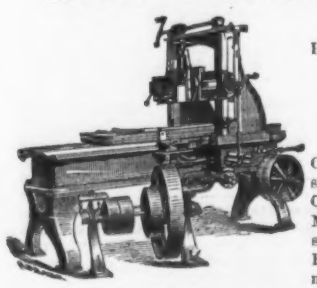
Circulars sent free.

The Pratt & Whitney Co.,

Hartford, Conn.,

Have constantly on hand and making

Drop Hammers



Of recently Improved Construction. Pony Trip Hammers, Blacksmiths' Sheaves, Broaching and Stamping Presses, Iron Shop Cranes, Machinists' Tools, Gun and Sewing Machine Machinery. Make to order Gray and Charcoal Iron Castings of all styles and sizes not exceeding 15 tons weight, (making patterns if desired). Furnish Clamp Pulleys of light patterns, cut gears in a superior manner, &c., &c.

RICHARD DUDGEON,

No. 24 Columbia Street, New York,

MAKER AND PATENTEE OF

Hydraulic Jacks and Punches,

ROLLER TUBE EXPANDERS

And Direct-Acting Steam Hammers.

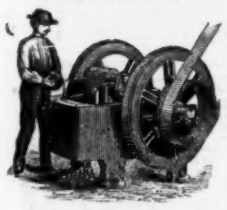
Communications by letter will receive prompt attention.

JACKS for Pressing on Car Wheels or CRANK PINS made to order.

BLAKE'S PATENT

STONE & ORE BREAKER.

New Pattern with Important Improvements & Abundant Strength



For reducing to fragments all kinds of hard and brittle substances, such as STONE for making the most perfect McADAM ROADS, and for making the best CONCRETE. It breaks stone at trifling cost for BALLASTING RAILROADS It is extensively in use in MINING operations, for crushing

IRON, COPPER, ZINC, SILVER, GOLD, and other ORES.

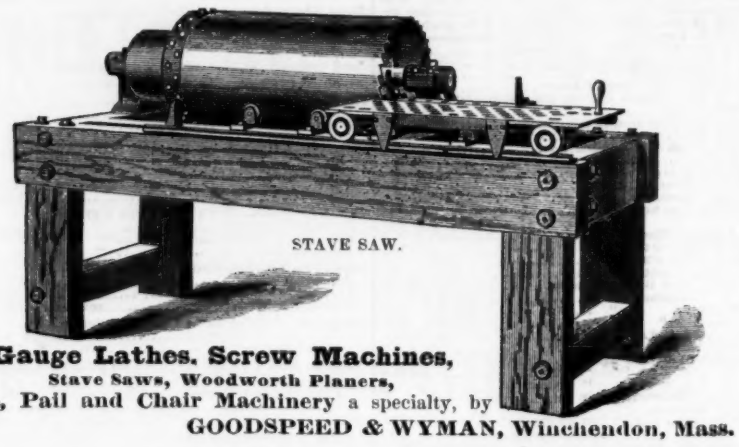
Also for crushing **Quartz, Flint, Emery, Corundum, Feldspar, Coal, Barytes, Manganese, Phosphate Rock. Plaster, Soapstone, &c.**

For Illustrated Circulars, and particulars, address,

BLAKE CRUSHER CO., New Haven, Conn.

Persons visiting New York, can be shown a crusher in operation at 137 Elm St

---



STAVE SAW.

Gauge Lathes. Screw Machines,

Stave Saws, Woodworth Planers,

Tub, Pail and Chair Machinery a specialty, by

GOODSPEED & WYMAN, Winchendon, Mass.

CORLISS STEAM ENGINE.

The Best in the World for Economy in Fuel and Cost of Running.

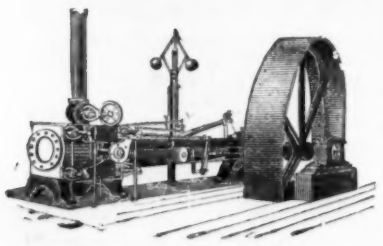
BUILT BY

Robert Wetherill & Co.,

Chester, Pa.,

Engineers, Machinists, Founders,

And BOILER MAKERS.



Stationary Engines, Shafting, Mill Gearing, Hoisting Machines, Improved Piston Packing and Machinery.

Special attention given to Boring Ports and Cylinders.

Philadelphia Forging Works.

MANUFACTURERS OF

Wrought Iron Carriage & Wagon Hardware

AND ALL DESCRIPTIONS OF

Steel & Iron Drop Forgings.

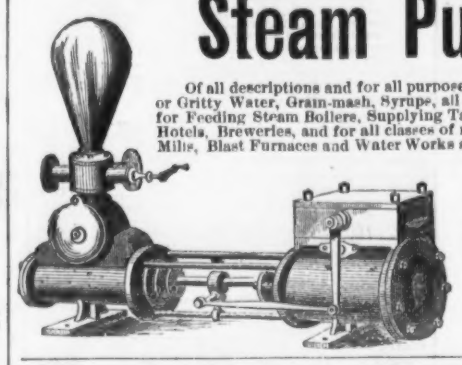
OFFICE AND WORKS:

1203 1205 & 1207 East Thomoson St. above Cumberland, PHILADELPHIA.

Guild & Garrison's Steam Pump Works,

Nos. 30 to 34 First Street, Williamsburgh, N. Y., MANUFACTURERS OF

Steam Pumping Machinery



Of all descriptions and for all purposes, of any proportion or size, for pumping Hot, Cold, Fresh, Salt, Muddy or Gritty Water, Grain-mash, Syrups, all kinds of Beer, Acids, Molasses, and all heavy and thick fluids. Also for Feeding Steam Boilers, Supplying Tanks, and for Sugar Refineries, Tanneries, Oil Refineries, Gas Works, Hotels, Breweries, and for all classes of manufactories: for Draining Mines and Excavations, and for Rolling Mills, Blast Furnaces and Water Works supplying Cities, Towns and Villages with Water; also, for Wrecking purposes and Steam Fire Engines for Land and Sea.

Also, Manufacturers of Vacuum Pumps, Duplex and Single, and Copper or Iron Vacuum Pans of all sizes and for all purposes, with complete fixtures for Refining Sugar, Corn Syrup, Glue, &c., or for condensing Milk, Extracts, Chemicals, &c., &c.

Catalogues mailed on application.

All Work from this Establishment fully Warranted.

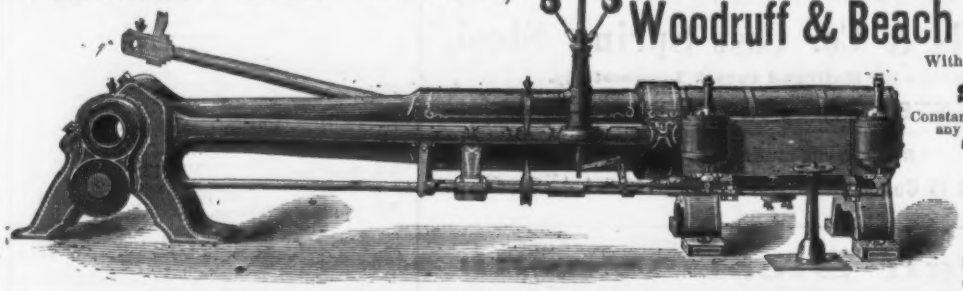
Woodruff Iron Works,

Office, 223 State Street, Hartford, Conn.

Manufacturers of the Celebrated

Woodruff & Beach Steam Engine,

With recent valuable improvements.



Steam Boilers

Constantly on hand and made to order of any size or style. Special attention given to the manufacture of

MILL WORK

And all kinds of Machinery.

CASTINGS

Of any size or style. Direct all letters to **The Woodruff Iron Works, Hartford, Conn.**, as the Woodruff & Beach Iron Works and firm of Woodruff & Beach are both dissolved.

Revised Price List of the Stiles Power Press.

Number	1	2	3	3½	4	4½	5	BACK GEAR.	3	4	5
Price.....$	175	275	375	400	500	550	650		550	750	1000
Weight about.....lbs	600	1000	1800	2000	3000	3250	5000		2300	4200	6500
Size of opening in bed.....in	4x6	5x8	7x10	10x10	9x12	14x20	11x14		7x10	9x12	11x14
Diameter of fly wheel.....in	22	28	33	33	40	40	50		32	35	48
Weight of fly wheel.....lbs	125	225	400	400	650	650	1000		275	470	825

MANUFACTURED ONLY BY

THE STILES & PARKER PRESS COMPANY,

MIDDLETOWN, CONN.

A Written Guarantee given with our Pumps.

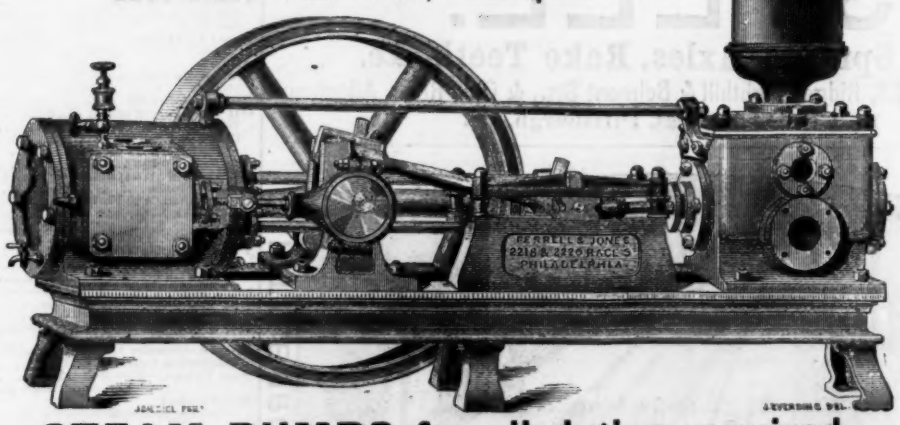
ENTERPRISE HYDRAULIC WORKS,

2218 & 2220 Race Street, Philadelphia.

Fan Blowers.

Piston Blowers,

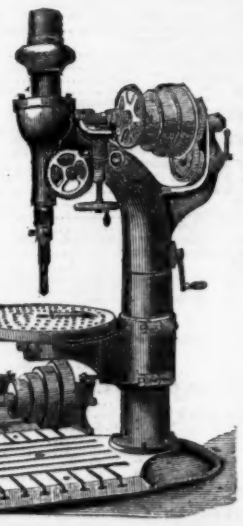
"FOULDS" Patent Water Elevator.



Our Fly Wheel STEAM PUMP is admirable For Fire Purposes.

STEAM PUMPS for all duties required.

Centrifugal, Hand and Power Pumps, Special Double Plunger Pumps for Mining Purposes. Boiler Feed and Tank Pumps.



E. HARRINGTON & SON,

Manufacturers of

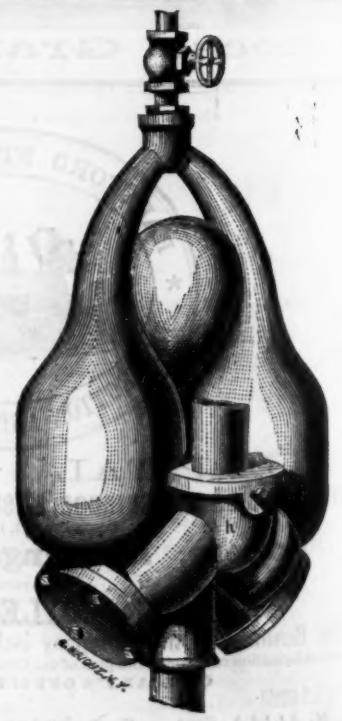
Engine Lathes,

From twelve (12) to forty-eight (48) inches swing;

Hand Lathes; Wood Turning Lathes; Vertical Drills; Boring Mills; Tapping and Centering Machines; Screw Press for Mandrels; Grindstone Boxes.

Cor. N. 15 St. & Pennsylvania Ave., Phila.

THE PULSOMETER.



The simplest, most durable and effective Steam Pump now in use. Will pump gritty or muddy water, without wear or injury to its parts. It cannot get out of order.

BRANCH DEPOTS.

11 Pemberton Square, Boston.
1327 Market St., Philadelphia.
59 Wells St., Chicago.
Southwestern Exposition, New Orleans.
811 & 813 North Second St., St. Louis, Mo.

C. HENRY HALL & CO.,

90 Cortlandt St., New York City.

GRANT'S LIGHTNING SCREW PLATE.

The most perfect Labor Saving Tool ever invented for its purposes. Warranted to do five times the work possible with any other screw plate. Also ***HAND BOLT CUTTING MACHINES,*** ranging in price from $60 to $200. ***POWER BOLT CUTTERS,*** from $175 to $350.

FINE FRICTION CLUTCHES.

WILEY & RUSSELL, Greenfield, Mass.

Machinery, &c.

Machinery, &c.

Machinery, &c.

TUBAL SMELTING WORKS,

760 South Broad Street, PHILADELPHIA.

PAUL S. REEVES,

MANUFACTURER OF

ANTI-FRICTION METALS

OF VARIOUS GRADES.

XXX	Metal Nickel Hardening	50 cts.	℔
XX	Metal Nickel Hardening	45 cts.	℔
X	Metal Copper Hardening	40 cts.	℔
A	" "	35 cts.	℔
B	" " "	30 cts.	℔
C	" "	25 cts.	℔

D, E, F	These metals are alloys of lead, with a large percentage of tin, antimony and copper, according to price.	20 cts. 18 cts. 16 cts.
G, H	These metals are the ordinary low priced Babbitt alloys, used where there is not much wear on the machinery, and where economy is required.	14 cts. 12 cts.

BRASS CASTINGS, from 21c to 35c per lb. **PIG BRASS,** from 19c to 32c per lb.

Deals in *Block Tin, Lead, Antimony, Spelter, Sheet Copper, Crucibles, &c.,* Old Metals bought.

Plumb, Burdict & Barnard,

BUFFALO, N. Y.

MANUFACTURERS OF

BOLTS

COACH SCREWS,

SKEIN BOLTS,

CARRIAGE BOLTS,

TIRE, SLEIGH SHOE,

Machine and Blank Bolts.

FERNALD & SISE, N. Y. Agents, 100 Chambers St.

S. A. WOODS MACHINE CO.,

Manufacturers of

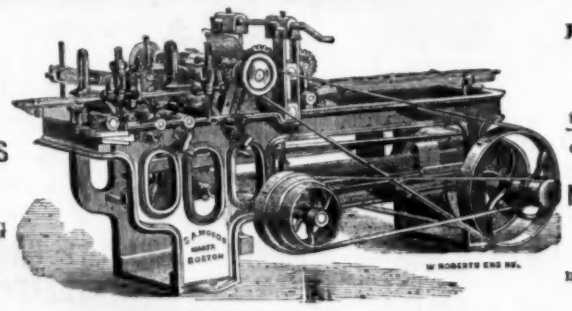
Planing, Tonguing and Grooving Machines.

Moulding Machines and Dimension Planers a Specialty.

We also deal in all kinds of **Wood Working Machinery, and Iron Tools, Steam Engines and Boilers, Shafting, Pullies and Hangers.**

ALSO,

SOLID EMERY WHEELS AND GRINDING Machines.



PLANER KNIVES to fit any machines.

MOULDING Cutters made to order.

Also agents for **Bradley's Cushioned Hammer.** Send for Circulars and Price List.

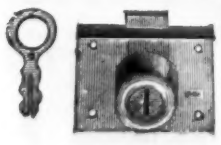
Machinery Depots, 91 Liberty Street, N. Y. 67 Sudbury Street, Boston, Mass.

AMERICAN LOCK CO., Cazenovia, N. Y.

Manufacturers of FINE

Store Door, Drawer and Pad Locks and N't Latches,

Containing 30 or more Springless Tumblers affording great security.



Pugsley & Chapman, 6 Gold St., N. Y. Also, manufacturers of **Wheelbarrows and Store Trucks,** and Hardware Dealers. Send for Price List. A full line of goods in stock.

PUGSLEY & CHAPMAN,

No. 6 Gold St., N. Y.

SUCCESS

BEYOND COMPETITION.

Nellis' Patent Cotton Tie.

This TIE meets the approval of every Planter and Factor that has given it a trial. A single trial at the Press or Compress affirms its strength, merits and advantages over any in the market. We are prepared to supply the trade at market prices. Orders and Sample Orders respectfully solicited.

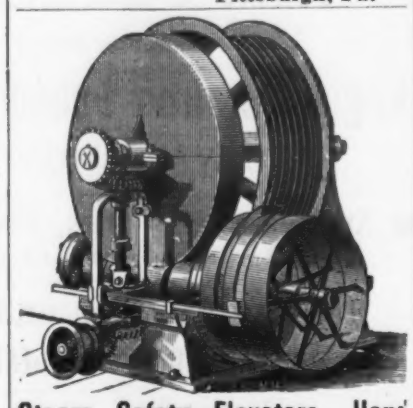
Nellis' Process for Tempering Steel,

Which we use in the manufacture of Moldboards, Walking and Riding Cultivator Shovel, Oval and Flat Reversible Points, Cultivator Teeth, Rolling Coulters, Cotton Sweeps, Scrapers, Bull Tongues, Pea Vine Cutters, Whiffletree Clips, Steel and Iron Harrow Teeth, &c.; in fact, everything in the Agricultural Steel lines, which we bevel, temper and finish to suit all kinds of soil. Implement makers and Farmers can govern themselves in making selections by the imprint thereon of our Trade Mark.

Also Manufacturers of Nellis Original Harpoon Horse Hay Fork, Nellis' Grapple and Pulleys and Hart's Post Auger. Your wants in our lines will receive prompt attention by addressing

A. J. NELLIS & CO.,

Pittsburgh, Pa.



Steam Safety Elevators, Hand Hoisting Machinery,

SELF-CLOSING HATCH DOORS.

GEO. C. HOWARD, 17 S. 18th St., Phila., Pa.

Wm. & Harvey Rowland,

Manufacturers of

NORWAY SHAPES,

AND

Norway Nail Rods,

Springs and Steel,

Frankford, Philadelphia.

No. 74 Lantern,

ADJUSTABLE GLOBE.

Kerosene, Oil & Candle.

New, Cheap, Strong, Durable. Takes the No. 0 TUBULAR GLOBE. Excellent Burner.

GREAT Demand for the Cheapest and BEST Lanterns in the Market.

R. E. DIETZ,

54 & 56 Fulton Street, N. Y.

WM. ESTERBROOK,

Wholesale Manufacturer of

Coal Hods, Fire Shovels, etc.,

311 Cherry St., PHILADELPHIA.

EXPORT.

KEUFFEL & ESSER, 111 Fulton Street, N. Y.

Exporters of

American Machines, Tools, and General Hardware.

Best connections in England, Germany, France, Austria, Russia, Sweden, to introduce new articles. Manufacturers will please send their samples and price lists.

READ & DICKEY

Cleveland, O.

BROKERS IN

IRON.

Pig, Bar, Band, Hoop, Plate, Sheet, Skelp, Nails, &c.

USE THE

BEST IN THE WORLD.

FOR SALE EVERYWHERE

Samples free to Sextons and Janitors of Public Buildings.

LOOSE POLISH FOR STOVE DEALERS & THE TRADE.

No more Hot Journals or Bearings by using

Plumbago Lubricant,

FOR ALL KINDS OF

MACHINERY, CAR AXLES, &c.

NEW YORK BLACK LEAD WORKS,

172 Forsyth Street, New York.

Russell, Burdsall & Ward,

PORT CHESTER, N. Y.

Manufacturers of

Carriage, Tire, Plow, Stove,

AND OTHER

BOLTS.

Carriage Bolts made from Best Square Iron, a Specialty.

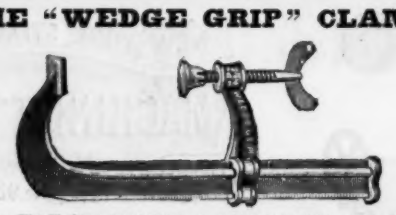
THE "DOMESTIC" BLIND ADJUSTER.

Especially desirable for opening or closing Blinds in Winter.

Manufactured by VAN WAGONER & WILLIAMS, 27 Park Row, N. Y.

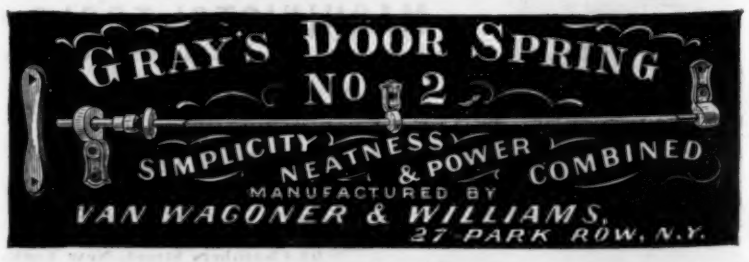
THE "WEDGE GRIP" CLAMP.

QUICK TO GRIP



AND SURE TO HOLD.

Manufactured by VAN WAGONER & WILLIAMS, 27 Park Row, N. Y.



THE IVENS & BROOKE PATENT

ECCENTRIC GEARED

POWER PRESS

For Punching, Shearing, and Stamping Metals.

Irregular motion of Crank-Shaft corrected by Eccentric Gear.

Saves 50 per Cent.

in wear of Dies and Punches and time lost in changing them. At **same speed** with the old Press, this gives **double the time** to adjust the work, insuring accuracy and greater production.

The Patent Adjustment warranted **Positive** under all pressures, and susceptible of the nicest shade of variation.

MANUFACTURED BY

AMERICAN SAW CO.,

TRENTON, NEW JERSEY.

Send for Descriptive Circular.